



# SEQUENCE LISTING

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<120> COMPLEXES OF ALPHA (2) MACROGLOBULIN AND ANTIGENIC MOLECULES FOR IMMUNOTHERAPY

<130> 8449-178-999

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<170> PatentIn version 3.2

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<211> 14849

<212> DNA

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Gly	Leu	Ala	Val	Asp	Trp	Val	Ser	Arg	Asn	Leu	Phe	Trp	Thr	Ser		
		1665					1670					1675				
tac	gac	acc	aac	aag	aag	cag	att	aac	gtg	gcc	cgg	ctg	gac	ggc		5517
Tyr	Asp	Thr	Asn	Lys	Lys	Gln	Ile	Asn	Val	Ala	Arg	Leu	Asp	Gly		
		1680					1685					1690				
tcc	ttc	aag	aat	gcg	gtg	gtg	cag	ggc	ctg	gag	cag	ccc	cac	ggc		5562
Ser	Phe	Lys	Asn	Ala	Val	Val	Gln	Gly	Leu	Glu	Gln	Pro	His	Gly		
		1695					1700					1705				
ctg	gtc	gtc	cac	ccg	ctt	cgt	ggc	aag	ctc	tac	tgg	act	gat	ggg		5607
Leu	Val	Val	His	Pro	Leu	Arg	Gly	Lys	Leu	Tyr	Trp	Thr	Asp	Gly		



1710	1715	1720	
gac aac atc Asp Asn Ile 1725	agc atg gcc aac atg Ser Met Ala Asn Met 1730	gat ggg agc aac cac Asp Gly Ser Asn His 1735	act ctg Thr Leu 5652
ctc ttc agt Leu Phe Ser 1740	ggc cag aag ggc cct Gly Gln Lys Gly Pro 1745	gtg ggg ttg gcc att Val Gly Leu Ala Ile 1750	gac ttc Asp Phe 5697
cct gag agc Pro Glu Ser 1755	aaa ctc tac tgg atc Lys Leu Tyr Trp Ile 1760	agc tct ggg aac cac Ser Ser Gly Asn His 1765	aca atc Thr Ile 5742
aac cgt tgc Asn Arg Cys 1770	aat ctg gat ggg agc Asn Leu Asp Gly Ser 1775	gag ctg gag gtc atc Glu Leu Glu Val Ile 1780	gac acc Asp Thr 5787
atg cgg agc Met Arg Ser 1785	cag ctg ggc aag gcc Gln Leu Gly Lys Ala 1790	act gcc ctg gcc atc Thr Ala Leu Ala Ile 1795	atg ggg Met Gly 5832
gac aag ctg Asp Lys Leu 1800	tgg tgg gca gat cag Trp Trp Ala Asp Gln 1805	gtg tca gag aag atg Val Ser Glu Lys Met 1810	ggc acg Gly Thr 5877
tgc aac aaa Cys Asn Lys 1815	gcc gat ggc tct ggg Ala Asp Gly Ser Gly 1820	tcc gtg gtg ctg cgg Ser Val Val Leu Arg 1825	aac agt Asn Ser 5922
acc acg ttg Thr Thr Leu 1830	gtt atg cac atg aag Val Met His Met Lys 1835	gtg tat gac gag agc Val Tyr Asp Glu Ser 1840	atc cag Ile Gln 5967
cta gag cat Leu Glu His 1845	gag ggc acc aac ccc Glu Gly Thr Asn Pro 1850	tgc agt gtc aac aac Cys Ser Val Asn Asn 1855	gga gac Gly Asp 6012
tgt tcc cag Cys Ser Gln 1860	ctc tgc ctg cca aca Leu Cys Leu Pro Thr 1865	tca gag acg act cgc Ser Glu Thr Thr Arg 1870	tcc tgt Ser Cys 6057
atg tgt aca Met Cys Thr 1875	gcc ggt tac agc ctc Ala Gly Tyr Ser Leu 1880	cgg agc gga cag cag Arg Ser Gly Gln Gln 1885	gcc tgt Ala Cys 6102
gag ggt gtg Glu Gly Val 1890	ggc tct ttt ctc ctg Gly Ser Phe Leu Leu 1895	tac tct gta cat gag Tyr Ser Val His Glu 1900	gga att Gly Ile 6147
cgg ggg att Arg Gly Ile 1905	cca cta gat ccc aat Pro Leu Asp Pro Asn 1910	gac aag tcg gat gcc Asp Lys Ser Asp Ala 1915	ctg gtc Leu Val 6192
cca gtg tcc Pro Val Ser 1920	gga act tca ctg gct Gly Thr Ser Leu Ala 1925	gtc gga atc gac ttc Val Gly Ile Asp Phe 1930	cat gcc His Ala 6237
gaa aat gac Glu Asn Asp 1935	act att tat tgg gtg Thr Ile Tyr Trp Val 1940	gat atg ggc cta agc Asp Met Gly Leu Ser 1945	acc atc Thr Ile 6282

agc agg gcc	aag cgt gac cag	aca tgg cga gag gat	gtg gtg acc	6327
Ser Arg Ala	Lys Arg Asp Gln	Thr Trp Arg Glu Asp	Val Val Thr	
1950	1955	1960		
aac ggt att	ggc cgt gtg gag	ggc atc gcc gtg gac	tgg atc gca	6372
Asn Gly Ile	Gly Arg Val Glu	Gly Ile Ala Val Asp	Trp Ile Ala	
1965	1970	1975		
ggc aac ata	tac tgg acg gac	cag ggc ttc gat gtc	atc gag gtt	6417
Gly Asn Ile	Tyr Trp Thr Asp	Gln Gly Phe Asp Val	Ile Glu Val	
1980	1985	1990		
gcc cgg ctc	aat ggc tct ttt	cgt tat gtg gtc att	tcc cag ggt	6462
Ala Arg Leu	Asn Gly Ser Phe	Arg Tyr Val Val Ile	Ser Gln Gly	
1995	2000	2005		
ctg gac aag	cct cgg gcc atc	act gtc cac cca gag	aag ggg tac	6507
Leu Asp Lys	Pro Arg Ala Ile	Thr Val His Pro Glu	Lys Gly Tyr	
2010	2015	2020		
ttg ttc tgg	acc gag tgg ggt	cat tac cca cgt att	gag cgg tct	6552
Leu Phe Trp	Thr Glu Trp Gly	His Tyr Pro Arg Ile	Glu Arg Ser	
2025	2030	2035		
cgc ctt gat	ggc aca gag aga	gtg gtc ttg gtt aat	gtc agc atc	6597
Arg Leu Asp	Gly Thr Glu Arg	Val Val Leu Val Asn	Val Ser Ile	
2040	2045	2050		
agc tgg ccc	aat ggc atc tca	gta gac tat cag ggc	ggc aag ctc	6642
Ser Trp Pro	Asn Gly Ile Ser	Val Asp Tyr Gln Gly	Gly Lys Leu	
2055	2060	2065		
tac tgg tgt	gat gct cgg atg	gac aag atc gag cgc	atc gac ctg	6687
Tyr Trp Cys	Asp Ala Arg Met	Asp Lys Ile Glu Arg	Ile Asp Leu	
2070	2075	2080		
gaa acg ggc	gag aac cgg gag	gtg gtc ctg tcc agc	aat aac atg	6732
Glu Thr Gly	Glu Asn Arg Glu	Val Val Leu Ser Ser	Asn Asn Met	
2085	2090	2095		
gat atg ttc	tcc gtg tcc gtg	ttt gag gac ttc atc	tac tgg agt	6777
Asp Met Phe	Ser Val Ser Val	Phe Glu Asp Phe Ile	Tyr Trp Ser	
2100	2105	2110		
gac aga act	cac gcc aat ggc	tcc atc aag cgc ggc	tgc aaa gac	6822
Asp Arg Thr	His Ala Asn Gly	Ser Ile Lys Arg Gly	Cys Lys Asp	
2115	2120	2125		
aat gct aca	gac tcc gtg cct	ctg agg aca ggc att	ggt gtt cag	6867
Asn Ala Thr	Asp Ser Val Pro	Leu Arg Thr Gly Ile	Gly Val Gln	
2130	2135	2140		
ctt aaa gac	atc aag gtc ttc	aac agg gac agg cag	aag ggt acc	6912
Leu Lys Asp	Ile Lys Val Phe	Asn Arg Asp Arg Gln	Lys Gly Thr	
2145	2150	2155		
aat gtg tgc	gcg gta gcc aac	ggc ggg tgc cag cag	ctc tgc ttg	6957
Asn Val Cys	Ala Val Ala Asn	Gly Gly Cys Gln Gln	Leu Cys Leu	
2160	2165	2170		

tat cgg ggt ggc gga cag cga gcc tgt gcc tgt gcc cac ggg atg	7002
Tyr Arg Gly Gly Gly Gln Arg Ala Cys Ala Cys Ala His Gly Met	
2175 2180 2185	
ctg gca gaa gac ggg gcc tca tgc cga gag tac gct ggc tac ctg	7047
Leu Ala Glu Asp Gly Ala Ser Cys Arg Glu Tyr Ala Gly Tyr Leu	
2190 2195 2200	
ctc tac tca gag cgg acc atc ctc aag agc atc cac ctg tcg gat	7092
Leu Tyr Ser Glu Arg Thr Ile Leu Lys Ser Ile His Leu Ser Asp	
2205 2210 2215	
gag cgt aac ctc aac gca ccg gtg cag ccc ttt gaa gac ccc gag	7137
Glu Arg Asn Leu Asn Ala Pro Val Gln Pro Phe Glu Asp Pro Glu	
2220 2225 2230	
cac atg aaa aat gtc atc gcc ctg gcc ttt gac tac cga gca ggc	7182
His Met Lys Asn Val Ile Ala Leu Ala Phe Asp Tyr Arg Ala Gly	
2235 2240 2245	
acc tcc ccg ggg acc cct aac cgc atc ttc ttc agt gac atc cac	7227
Thr Ser Pro Gly Thr Pro Asn Arg Ile Phe Phe Ser Asp Ile His	
2250 2255 2260	
ttt ggg aac atc cag cag atc aat gac gat ggc tcg ggc agg acc	7272
Phe Gly Asn Ile Gln Gln Ile Asn Asp Asp Gly Ser Gly Arg Thr	
2265 2270 2275	
acc atc gtg gaa aat gtg ggc tct gtg gaa ggc ctg gcc tat cac	7317
Thr Ile Val Glu Asn Val Gly Ser Val Glu Gly Leu Ala Tyr His	
2280 2285 2290	
cgt ggc tgg gac aca ctg tac tgg aca agc tac acc aca tcc acc	7362
Arg Gly Trp Asp Thr Leu Tyr Trp Thr Ser Tyr Thr Thr Ser Thr	
2295 2300 2305	
atc acc cgc cac acc gtg gac cag act cgc cca ggg gcc ttc gag	7407
Ile Thr Arg His Thr Val Asp Gln Thr Arg Pro Gly Ala Phe Glu	
2310 2315 2320	
agg gag aca gtc atc acc atg tcc gga gac gac cac ccg aga gcc	7452
Arg Glu Thr Val Ile Thr Met Ser Gly Asp Asp His Pro Arg Ala	
2325 2330 2335	
ttt gtg ctg gat gag tgc cag aac ctg atg ttc tgg acc aat tgg	7497
Phe Val Leu Asp Glu Cys Gln Asn Leu Met Phe Trp Thr Asn Trp	
2340 2345 2350	
aac gag ctc cat cca agc atc atg cgg gca gcc cta tcc gga gcc	7542
Asn Glu Leu His Pro Ser Ile Met Arg Ala Ala Leu Ser Gly Ala	
2355 2360 2365	
aac gtc ctg acc ctc att gag aag gac atc cgc acg ccc aat ggg	7587
Asn Val Leu Thr Leu Ile Glu Lys Asp Ile Arg Thr Pro Asn Gly	
2370 2375 2380	
ttg gcc atc gac cac cgg gcg gag aag ctg tac ttc tcg gat gcc	7632
Leu Ala Ile Asp His Arg Ala Glu Lys Leu Tyr Phe Ser Asp Ala	
2385 2390 2395	
acc ttg gac aag atc gag cgc tgc gag tac gac ggc tcc cac cgc	7677

Thr	Leu	Asp	Lys	Ile	Glu	Arg	Cys	Glu	Tyr	Asp	Gly	Ser	His	Arg			
		2400					2405					2410					
tat	gtg	atc	cta	aag	tcg	gag	ccc	gtc	cac	ccc	ttt	ggg	ttg	gcg		7722	
Tyr	Val	Ile	Leu	Lys	Ser	Glu	Pro	Val	His	Pro	Phe	Gly	Leu	Ala			
		2415					2420					2425					
gtg	tac	gga	gag	cac	att	ttc	tgg	act	gac	tgg	gtg	cgg	cgg	gct		7767	
Val	Tyr	Gly	Glu	His	Ile	Phe	Trp	Thr	Asp	Trp	Val	Arg	Arg	Ala			
		2430					2435					2440					
gtg	cag	cga	gcc	aac	aag	tat	gtg	ggc	agc	gac	atg	aag	ctg	ctt		7812	
Val	Gln	Arg	Ala	Asn	Lys	Tyr	Val	Gly	Ser	Asp	Met	Lys	Leu	Leu			
		2445					2450					2455					
cgg	gtg	gac	att	ccc	cag	caa	ccc	atg	ggc	atc	atc	gcc	gtg	gcc		7857	
Arg	Val	Asp	Ile	Pro	Gln	Gln	Pro	Met	Gly	Ile	Ile	Ala	Val	Ala			
		2460					2465					2470					
aat	gac	acc	aac	agc	tgt	gaa	ctc	tcc	ccc	tgc	cgt	atc	aac	aat		7902	
Asn	Asp	Thr	Asn	Ser	Cys	Glu	Leu	Ser	Pro	Cys	Arg	Ile	Asn	Asn			
		2475					2480					2485					
gga	ggc	tgc	cag	gat	ctg	tgt	ctg	ctc	acc	cac	caa	ggc	cac	gtc		7947	
Gly	Gly	Cys	Gln	Asp	Leu	Cys	Leu	Leu	Thr	His	Gln	Gly	His	Val			
		2490					2495					2500					
aac	tgt	tcc	tgt	cga	ggg	ggc	cgg	atc	ctc	cag	gag	gac	ttc	acc		7992	
Asn	Cys	Ser	Cys	Arg	Gly	Gly	Arg	Ile	Leu	Gln	Glu	Asp	Phe	Thr			
		2505					2510					2515					
tgc	cgg	gct	gtg	aac	tcc	tct	tgt	cgg	gca	caa	gat	gag	ttt	gag		8037	
Cys	Arg	Ala	Val	Asn	Ser	Ser	Cys	Arg	Ala	Gln	Asp	Glu	Phe	Glu			
		2520					2525					2530					
tgt	gcc	aat	ggg	gaa	tgt	atc	agc	ttc	agc	ctc	acc	tgt	gat	ggc		8082	
Cys	Ala	Asn	Gly	Glu	Cys	Ile	Ser	Phe	Ser	Leu	Thr	Cys	Asp	Gly			
		2535					2540					2545					
gtc	tcc	cac	tgc	aag	gac	aag	tcc	gat	gag	aag	ccc	tcc	tac	tgc		8127	
Val	Ser	His	Cys	Lys	Asp	Lys	Ser	Asp	Glu	Lys	Pro	Ser	Tyr	Cys			
		2550					2555					2560					
aac	tca	cgc	cgc	tgc	aag	aag	act	ttc	cgc	cag	tgt	aac	aat	ggc		8172	
Asn	Ser	Arg	Arg	Cys	Lys	Lys	Thr	Phe	Arg	Gln	Cys	Asn	Asn	Gly			
		2565					2570					2575					
cgc	tgt	gta	tcc	aac	atg	ctg	tgg	tgc	aat	ggg	gtg	gat	tac	tgt		8217	
Arg	Cys	Val	Ser	Asn	Met	Leu	Trp	Cys	Asn	Gly	Val	Asp	Tyr	Cys			
		2580					2585					2590					
ggg	gat	ggc	tct	gat	gag	ata	cct	tgc	aac	aag	act	gcc	tgt	ggg		8262	
Gly	Asp	Gly	Ser	Asp	Glu	Ile	Pro	Cys	Asn	Lys	Thr	Ala	Cys	Gly			
		2595					2600					2605					
gtg	ggg	gag	ttc	cgc	tgc	cgg	gat	ggg	tcc	tgc	atc	ggg	aac	tcc		8307	
Val	Gly	Glu	Phe	Arg	Cys	Arg	Asp	Gly	Ser	Cys	Ile	Gly	Asn	Ser			
		2610					2615					2620					
agt	cgc	tgc	aac	cag	ttt	gtg	gat	tgt	gag	gat	gcc	tcg	gat	gag		8352	
Ser	Arg	Cys	Asn	Gln	Phe	Val	Asp	Cys	Glu	Asp	Ala	Ser	Asp	Glu			

2625				2630				2635				
atg	aat	tgc	agt gcc aca gac	tgc	agc agc tat ttc	cgc	ctg ggc	8397				
Met	Asn	Cys	Ser Ala Thr Asp	Cys	Ser Ser Tyr Phe	Arg	Leu Gly					
		2640				2650						
gtg	aaa	ggc	gtc ctc ttc cag ccg	tgc	gag cgg aca tcc	ctg	tgc	8442				
Val	Lys	Gly	Val Leu Phe Gln Pro	Cys	Glu Arg Thr Ser	Leu	Cys					
		2655				2665						
tac	gca	cct	agc tgg gtg tgt gat	ggc	gcc aac gac tgt	gga	gac	8487				
Tyr	Ala	Pro	Ser Trp Val Cys Asp	Gly	Ala Asn Asp Cys	Gly	Asp					
		2670				2680						
tac	agc	gat	gaa cgt gac tgt cca	ggc	gtg aag cgc cct	agg	tgc	8532				
Tyr	Ser	Asp	Glu Arg Asp Cys Pro	Gly	Val Lys Arg Pro	Arg	Cys					
		2685				2695						
ccg	ctc	aat	tac ttt gcc tgc ccc	agc	ggg cgc tgt atc	ccc	atg	8577				
Pro	Leu	Asn	Tyr Phe Ala Cys Pro	Ser	Gly Arg Cys Ile	Pro	Met					
		2700				2710						
agc	tgg	acg	tgt gac aag gag gat	gac	tgt gag aac ggc	gag	gat	8622				
Ser	Trp	Thr	Cys Asp Lys Glu Asp	Asp	Cys Glu Asn Gly	Glu	Asp					
		2715				2725						
gag	acc	cac	tgc aac aag ttc tgc	tca	gag gca cag ttc	gag	tgc	8667				
Glu	Thr	His	Cys Asn Lys Phe Cys	Ser	Glu Ala Gln Phe	Glu	Cys					
		2730				2740						
cag	aac	cac	cgg tgt atc tcc aag	cag	tgg ctg tgt gac	ggc	agc	8712				
Gln	Asn	His	Arg Cys Ile Ser Lys	Gln	Trp Leu Cys Asp	Gly	Ser					
		2745				2755						
gat	gat	tgc	ggg gat ggc tcc gat	gag	gca gct cac tgt	gaa	ggc	8757				
Asp	Asp	Cys	Gly Asp Gly Ser Asp	Glu	Ala Ala His Cys	Glu	Gly					
		2760				2770						
aag	aca	tgt	ggc ccc tcc tcc ttc	tcc	tgt ccc ggc acc	cac	gtg	8802				
Lys	Thr	Cys	Gly Pro Ser Ser Phe	Ser	Cys Pro Gly Thr	His	Val					
		2775				2785						
tgt	gtc	cct	gag cgc tgg ctc tgt	gat	ggc gac aag gac	tgt	acc	8847				
Cys	Val	Pro	Glu Arg Trp Leu Cys	Asp	Gly Asp Lys Asp	Cys	Thr					
		2790				2800						
gat	ggc	gcg	gat gag agt gtc act	gct	ggc tgc ctg tac	aac	agc	8892				
Asp	Gly	Ala	Asp Glu Ser Val Thr	Ala	Gly Cys Leu Tyr	Asn	Ser					
		2805				2815						
acc	tgt	gat	gac cgt gag ttc atg	tgc	cag aac cgc ttg	tgt	att	8937				
Thr	Cys	Asp	Asp Arg Glu Phe Met	Cys	Gln Asn Arg Leu	Cys	Ile					
		2820				2830						
ccc	aag	cat	ttc gtg tgc gac cat	gac	cgt gac tgt gct	gat	ggc	8982				
Pro	Lys	His	Phe Val Cys Asp His	Asp	Arg Asp Cys Ala	Asp	Gly					
		2835				2845						
tct	gat	gaa	tcc cct gag tgt gag	tac	cca acc tgc ggg	ccc	aat	9027				
Ser	Asp	Glu	Ser Pro Glu Cys Glu	Tyr	Pro Thr Cys Gly	Pro	Asn					
		2850				2860						

gaa ttc cgc	tgt gcc aat ggg	cgt	tgt ctg agc tcc	cgt	cag tgg	9072
Glu Phe Arg	Cys Ala Asn Gly	Arg	Cys Leu Ser Ser	Arg	Gln Trp	
2865		2870		2875		
gaa tgt gat	ggg gag aat gac	tgt	cac gac cac agc	gat	gag gct	9117
Glu Cys Asp	Gly Glu Asn Asp	Cys	His Asp His Ser	Asp	Glu Ala	
2880		2885		2890		
ccc aag aac	cca cac tgc acc	agc	cca gag cac aaa	tgc	aat gcc	9162
Pro Lys Asn	Pro His Cys Thr	Ser	Pro Glu His Lys	Cys	Asn Ala	
2895		2900		2905		
tca tca cag	ttc ctg tgc agc	agc	ggg cgc tgc gtg	gct	gag gcg	9207
Ser Ser Gln	Phe Leu Cys Ser	Ser	Gly Arg Cys Val	Ala	Glu Ala	
2910		2915		2920		
ttg ctc tgc	aac ggc cag gac	gac	tgt ggg gac ggt	tca	gac gaa	9252
Leu Leu Cys	Asn Gly Gln Asp	Asp	Cys Gly Asp Gly	Ser	Asp Glu	
2925		2930		2935		
cgc ggg tgc	cat gtc aac gag	tgt	ctc agc cgc aag	ctc	agt ggc	9297
Arg Gly Cys	His Val Asn Glu	Cys	Leu Ser Arg Lys	Leu	Ser Gly	
2940		2945		2950		
tgc agt cag	gac tgc gag gac	ctc	aag ata ggc ttt	aag	tgc cgc	9342
Cys Ser Gln	Asp Cys Glu Asp	Leu	Lys Ile Gly Phe	Lys	Cys Arg	
2955		2960		2965		
tgt cgc ccg	ggc ttc cgg cta	aag	gac gat ggc agg	acc	tgt gcc	9387
Cys Arg Pro	Gly Phe Arg Leu	Lys	Asp Asp Gly Arg	Thr	Cys Ala	
2970		2975		2980		
gac ctg gat	gag tgc agc acc	acc	ttc ccc tgc agc	cag	ctc tgc	9432
Asp Leu Asp	Glu Cys Ser Thr	Thr	Phe Pro Cys Ser	Gln	Leu Cys	
2985		2990		2995		
atc aac acc	cac gga agt tac	aag	tgt ctg tgt gtg	gag	ggc tat	9477
Ile Asn Thr	His Gly Ser Tyr	Lys	Cys Leu Cys Val	Glu	Gly Tyr	
3000		3005		3010		
gca ccc cgt	ggc ggt gac ccc	cac	agc tgc aaa gct	gtg	acc gat	9522
Ala Pro Arg	Gly Gly Asp Pro	His	Ser Cys Lys Ala	Val	Thr Asp	
3015		3020		3025		
gag gag cca	ttt ctc atc ttt	gcc	aac cgg tac tac	ctg	cgg aag	9567
Glu Glu Pro	Phe Leu Ile Phe	Ala	Asn Arg Tyr Tyr	Leu	Arg Lys	
3030		3035		3040		
ctc aac ctg	gac ggc tcc aac	tac	aca ctg ctt aag	cag	ggc ctg	9612
Leu Asn Leu	Asp Gly Ser Asn	Tyr	Thr Leu Leu Lys	Gln	Gly Leu	
3045		3050		3055		
aac aat gcg	gtc gcc ttg gca	ttt	gac tac cga gag	cag	atg atc	9657
Asn Asn Ala	Val Ala Leu Ala	Phe	Asp Tyr Arg Glu	Gln	Met Ile	
3060		3065		3070		
tac tgg acg	ggc gtg acc acc	cag	ggc agc atg att	cgc	agg atg	9702
Tyr Trp Thr	Gly Val Thr Thr	Gln	Gly Ser Met Ile	Arg	Arg Met	
3075		3080		3085		

cac ctc aac ggc agc aac gtg cag gtt ctg cac cgg acg ggc ctt	9747
His Leu Asn Gly Ser Asn Val Gln Val Leu His Arg Thr Gly Leu	
3090 3095 3100	
agt aac cca gat ggg ctc gct gtg gac tgg gtg ggt ggc aac ctg	9792
Ser Asn Pro Asp Gly Leu Ala Val Asp Trp Val Gly Gly Asn Leu	
3105 3110 3115	
tac tgg tgt gac aag ggc aga gat acc att gag gtg tcc aag ctt	9837
Tyr Trp Cys Asp Lys Gly Arg Asp Thr Ile Glu Val Ser Lys Leu	
3120 3125 3130	
aac ggg gcc tat cgg aca gtg ctg gtc agc tct ggc ctc cgg gag	9882
Asn Gly Ala Tyr Arg Thr Val Leu Val Ser Ser Gly Leu Arg Glu	
3135 3140 3145	
ccc aga gct ctg gta gtg gat gta cag aat ggg tac ctg tac tgg	9927
Pro Arg Ala Leu Val Val Asp Val Gln Asn Gly Tyr Leu Tyr Trp	
3150 3155 3160	
aca gac tgg ggt gac cac tca ctg atc ggc cgg att ggc atg gat	9972
Thr Asp Trp Gly Asp His Ser Leu Ile Gly Arg Ile Gly Met Asp	
3165 3170 3175	
gga tct ggc cgc agc atc atc gtg gac act aag atc aca tgg ccc	10017
Gly Ser Gly Arg Ser Ile Ile Val Asp Thr Lys Ile Thr Trp Pro	
3180 3185 3190	
aat ggc ctg acc gtg gac tac gtc acg gaa cgc atc tac tgg gct	10062
Asn Gly Leu Thr Val Asp Tyr Val Thr Glu Arg Ile Tyr Trp Ala	
3195 3200 3205	
gac gcc cgt gag gac tac atc gag ttc gcc agc ctg gat ggc tcc	10107
Asp Ala Arg Glu Asp Tyr Ile Glu Phe Ala Ser Leu Asp Gly Ser	
3210 3215 3220	
aac cgt cac gtt gtg ctg agc caa gac atc cca cac atc ttt gcg	10152
Asn Arg His Val Val Leu Ser Gln Asp Ile Pro His Ile Phe Ala	
3225 3230 3235	
ctg acc cta ttt gaa gac tac gtc tac tgg aca gac tgg gaa acg	10197
Leu Thr Leu Phe Glu Asp Tyr Val Tyr Trp Thr Asp Trp Glu Thr	
3240 3245 3250	
aag tcc atc aac cgg gcc cac aag acc acg ggt gcc aac aaa aca	10242
Lys Ser Ile Asn Arg Ala His Lys Thr Thr Gly Ala Asn Lys Thr	
3255 3260 3265	
ctc ctc atc agc acc ctg cac cgg ccc atg gac tta cat gta ttc	10287
Leu Leu Ile Ser Thr Leu His Arg Pro Met Asp Leu His Val Phe	
3270 3275 3280	
cac gcc ctg cgc cag cca gat gtg ccc aat cac ccc tgc aaa gtc	10332
His Ala Leu Arg Gln Pro Asp Val Pro Asn His Pro Cys Lys Val	
3285 3290 3295	
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Asn Asn Gly Gly Cys Ser Asn Leu Cys Leu Leu Ser Pro Gly Gly	
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Gly His Lys Cys Ala Cys Pro Thr Asn Phe Tyr Leu Gly Gly Asp	
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Gly Arg Thr Cys Val Ser Asn Cys Thr Ala Ser Gln Phe Val Cys	
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Lys Asn Asp Lys Cys Ile Pro Phe Trp Trp Lys Cys Asp Thr Glu	
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Asp Asp Cys Gly Asp His Ser Asp Glu Pro Pro Asp Cys Pro Glu	
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Phe Lys Cys Arg Pro Gly Gln Phe Gln Cys Ser Thr Gly Ile Cys	
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Thr Asn Pro Ala Phe Ile Cys Asp Gly Asp Asn Asp Cys Gln Asp	
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Gln Phe Lys Cys Thr Asn Thr Asn Arg Cys Ile Pro Gly Ile Phe	
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Arg Cys Asn Gly Gln Asp Asn Cys Gly Asp Gly Glu Asp Glu Arg	
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Asp Cys Pro Glu Val Thr Cys Ala Pro Asn Gln Phe Gln Cys Ser	
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Ile Thr Lys Arg Cys Ile Pro Arg Val Trp Val Cys Asp Arg Asp	
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Asn His Cys Val Asp Gly Ser Asp Glu Pro Ala Asn Cys Thr Gln	
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Met Thr Cys Gly Val Asp Glu Phe Arg Cys Lys Asp Ser Gly Arg	
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Cys Ile Pro Ala Arg Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly	
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Asp Gly Ser Asp Glu Pro Lys Glu Glu Cys Asp Glu Arg Thr Cys	
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Glu Pro Tyr Gln Phe Arg Cys Lys Asn Asn Arg Cys Val Pro Gly	



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Ser Ile Asp	Pro Lys Leu Thr	Ser	Cys Ala Thr Asn Ala	Ser Met	
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Cys Gly Asp	Glu Ala Arg Cys	Val	Arg Thr Glu Lys Ala	Ala Tyr	
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Cys Ala Cys	Arg Ser Gly Phe	His	Thr Val Pro Gly Gln	Pro Gly	
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Cys Gln Asp	Ile Asn Glu Cys	Leu	Arg Phe Gly Thr Cys	Ser Gln	
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Leu Trp Asn	Lys Pro Lys Gly	Gly	His Leu Cys Ser Cys	Ala Arg	
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Asn Phe Met	Lys Thr His Asn	Thr	Cys Lys Ala Glu Gly	Ser Glu	
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Tyr Gln Val	Leu Tyr Ile Ala	Asp	Asp Asn Glu Ile Arg	Ser Leu	
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Phe Pro Gly	His Pro His Ser	Ala	Tyr Glu Gln Thr Phe	Gln Gly	
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Asp Glu Ser	Val Arg Ile Asp	Ala	Met Asp Val His Val	Lys Ala	
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Gly Arg Val	Tyr Trp Thr Asn	Trp	His Thr Gly Thr Ile	Ser Tyr	
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agg agc ctg	ccc cct gcc gcc	cct	cct acc act tcc aac	cgc cac	12267
Arg Ser Leu	Pro Pro Ala Ala	Pro	Pro Thr Thr Ser Asn	Arg His	
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Arg Arg Gln	Ile Asp Arg Gly	Val	Thr His Leu Asn Ile	Ser Gly	
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Leu Lys Met	Pro Arg Gly Ile	Ala	Ile Asp Trp Val Ala	Gly Asn	
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Val Tyr Trp	Thr Asp Ser Gly	Arg	Asp Val Ile Glu Val	Ala Gln	
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Glu Pro His Ala Ile Val Val Asp Pro Leu Arg Gly Thr Met Tyr	
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Trp Ser Asp Trp Gly Asn His Pro Lys Ile Glu Thr Ala Ala Met	
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Pro Thr Gly Leu Ala Val Asp Tyr His Asn Glu Arg Leu Tyr Trp	
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Tyr Ile Asn Asn Arg Val Phe Lys Ile His Lys Phe Gly His Ser	
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Pro Leu Tyr Asn Leu Thr Gly Gly Leu Ser His Ala Ser Asp Val	
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Val Leu Tyr His Gln His Lys Gln Pro Glu Val Thr Asn Pro Cys	
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Cys Val Pro Val Pro Ser Pro Thr Pro Pro Pro Asp Ala Pro Arg	
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Pro Gly Thr Cys Thr Leu Gln Cys Phe Asn Gly Gly Ser Cys Phe	
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Leu Asn Ala Arg Arg Gln Pro Lys Cys Arg Cys Gln Pro Arg Tyr	
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Thr Gly Asp	Lys Cys Glu Leu Asp	Gln Cys Trp Glu Tyr Cys His	
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Arg Cys Pro	Thr Gly Phe Thr Gly	Pro Lys Cys Thr Ala	Gln Val
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Cys Ala Gly	Tyr Cys Ser Asn Asn	Ser Thr Cys Thr Val	Asn Gln
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Arg Cys Gln	Tyr Arg Gln Cys Ser	Gly Phe Cys Glu Asn	Phe Gly
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Thr Cys Gln	Met Ala Ala Asp Gly	Ser Arg Gln Cys Arg	Cys Thr
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Val Tyr Phe	Glu Gly Pro Arg Cys	Glu Val Asn Lys Cys	Ser Arg
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Val Ala Gly	Val Val Phe Trp Tyr	Lys Arg Arg Val Arg	Gly Ala
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 <212> PRT  
 <213> Mus sp.

<400> 2

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Val	Ser	Gly	Ala	Thr	Met	Asp	Ala	Pro	Lys	Thr	Cys	Ser	Pro	Lys	Gln	20	25	30	
Phe	Ala	Cys	Arg	Asp	Gln	Ile	Thr	Cys	Ile	Ser	Lys	Gly	Trp	Arg	Cys	35	40	45	
Asp	Gly	Glu	Arg	Asp	Cys	Pro	Asp	Gly	Ser	Asp	Glu	Ala	Pro	Glu	Ile	50	55	60	
Cys	Pro	Gln	Ser	Lys	Ala	Gln	Arg	Cys	Pro	Pro	Asn	Glu	His	Ser	Cys	65	70	75	80
Leu	Gly	Thr	Glu	Leu	Cys	Val	Pro	Met	Ser	Arg	Leu	Cys	Asn	Gly	Ile	85	90	95	
Gln	Asp	Cys	Met	Asp	Gly	Ser	Asp	Glu	Gly	Ala	His	Cys	Arg	Glu	Leu	100	105	110	
Arg	Ala	Asn	Cys	Ser	Arg	Met	Gly	Cys	Gln	His	His	Cys	Val	Pro	Thr	115	120	125	
Pro	Ser	Gly	Pro	Thr	Cys	Tyr	Cys	Asn	Ser	Ser	Phe	Gln	Leu	Glu	Ala	130	135	140	
Asp	Gly	Lys	Thr	Cys	Lys	Asp	Phe	Asp	Glu	Cys	Ser	Val	Tyr	Gly	Thr	145	150	155	160
Cys	Ser	Gln	Leu	Cys	Thr	Asn	Thr	Asp	Gly	Ser	Phe	Thr	Cys	Gly	Cys	165	170	175	
Val	Glu	Gly	Tyr	Leu	Leu	Gln	Pro	Asp	Asn	Arg	Ser	Cys	Lys	Ala	Lys	180	185	190	
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Pro	Thr	Ser	Thr	Arg	Gln	Thr	Thr	Ala	Met	Asp	Phe	Ser	Tyr	Ala	Asn	225	230	235	240
Glu	Thr	Val	Cys	Trp	Val	His	Val	Gly	Asp	Ser	Ala	Ala	Gln	Thr	Gln	245	250	255	
Leu	Lys	Cys	Ala	Arg	Met	Pro	Gly	Leu	Lys	Gly	Phe	Val	Asp	Glu	His	260	265	270	
Thr	Ile	Asn	Ile	Ser	Leu	Ser	Leu	His	His	Val	Glu	Gln	Met	Ala	Ile	275	280	285	
Asp	Trp	Leu	Thr	Gly	Asn	Phe	Tyr	Phe	Val	Asp	Asp	Ile	Asp	Asp	Arg	290	295	300	
Ile	Phe	Val	Cys	Asn	Arg	Asn	Gly	Asp	Thr	Cys	Val	Thr	Leu	Leu	Asp	305	310	315	320
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Leu	Thr	Val	Phe	Glu	Asn	Tyr	Leu	Tyr	Ala	Thr	Asn	Ser	Asp	Asn	Ala				
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Ile	Tyr	His	Gln	Arg	Arg	Gln	Pro	Arg	Val	Arg	Ser	His	Ala	Cys	Glu				
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Ala	Asp	Thr	Thr	Ser	Tyr	Leu	Ile	Gly	Arg	Gln	Lys	Ile	Asp	Gly	Thr				
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Glu	Arg	Glu	Thr	Ile	Leu	Lys	Asp	Gly	Ile	His	Asn	Val	Glu	Gly	Val				
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Lys	Asp	Ser	Arg	Arg	Gly	Arg	Leu	Glu	Arg	Ala	Trp	Met	Asp	Gly	Ser		
		675					680					685					
His	Arg	Asp	Ile	Phe	Val	Thr	Ser	Lys	Thr	Val	Leu	Trp	Pro	Asn	Gly		
	690					695					700						
Leu	Ser	Leu	Asp	Ile	Pro	Ala	Gly	Arg	Leu	Tyr	Trp	Val	Asp	Ala	Phe		
705					710					715					720		
Tyr	Asp	Arg	Ile	Glu	Thr	Ile	Leu	Leu	Asn	Gly	Thr	Asp	Arg	Lys	Ile		
			725						730					735			
Val	Tyr	Glu	Gly	Pro	Glu	Leu	Asn	His	Ala	Phe	Gly	Leu	Cys	His	His		
		740						745					750				
Gly	Asn	Tyr	Leu	Phe	Trp	Thr	Glu	Tyr	Arg	Ser	Gly	Ser	Val	Tyr	Arg		
		755					760					765					
Leu	Glu	Arg	Gly	Val	Ala	Gly	Ala	Pro	Pro	Thr	Val	Thr	Leu	Leu	Arg		
	770					775					780						
Ser	Glu	Arg	Pro	Pro	Ile	Phe	Glu	Ile	Arg	Met	Tyr	Asp	Ala	His	Glu		
785					790					795					800		
Gln	Gln	Val	Gly	Thr	Asn	Lys	Cys	Arg	Val	Asn	Asn	Gly	Gly	Cys	Ser		
			805						810					815			
Ser	Leu	Cys	Leu	Ala	Thr	Pro	Gly	Ser	Arg	Gln	Cys	Ala	Cys	Ala	Glu		
		820						825					830				
Asp	Gln	Val	Leu	Asp	Thr	Asp	Gly	Val	Thr	Cys	Leu	Ala	Asn	Pro	Ser		
		835					840					845					
Tyr	Val	Pro	Pro	Pro	Gln	Cys	Gln	Pro	Gly	Gln	Phe	Ala	Cys	Ala	Asn		
	850					855					860						
Asn	Arg	Cys	Ile	Gln	Glu	Arg	Trp	Lys	Cys	Asp	Gly	Asp	Asn	Asp	Cys		
865					870					875					880		
Leu	Asp	Asn	Ser	Asp	Glu	Ala	Pro	Ala	Leu	Cys	His	Gln	His	Thr	Cys		
			885						890					895			
Pro	Ser	Asp	Arg	Phe	Lys	Cys	Glu	Asn	Asn	Arg	Cys	Ile	Pro	Asn	Arg		
			900					905					910				
Trp	Leu	Cys	Asp	Gly	Asp	Asn	Asp	Cys	Gly	Asn	Ser	Glu	Asp	Glu	Ser		
		915					920					925					
Asn	Ala	Thr	Cys	Ser	Ala	Arg	Thr	Cys	Pro	Pro	Asn	Gln	Phe	Ser	Cys		
	930					935					940						
Ala	Ser	Gly	Arg	Cys	Ile	Pro	Ile	Ser	Trp	Thr	Cys	Asp	Leu	Asp	Asp		
945					950					955					960		
Asp	Cys	Gly	Asp	Arg	Ser	Asp	Glu	Ser	Ala	Ser	Cys	Ala	Tyr	Pro	Thr		
				965					970					975			



Cys	Phe	Pro	Leu	Thr	Gln	Phe	Thr	Cys	Asn	Asn	Gly	Arg	Cys	Ile	Asn	
			980					985					990			
Ile	Asn	Trp	Arg	Cys	Asp	Asn	Asp	Asn	Asp	Cys	Gly	Asp	Asn	Ser	Asp	
		995					1000					1005				
Glu	Ala	Gly	Cys	Ser	His	Ser	Cys	Ser	Ser	Thr	Gln	Phe	Lys	Cys		
	1010					1015					1020					
Asn	Ser	Gly	Arg	Cys	Ile	Pro	Glu	His	Trp	Thr	Cys	Asp	Gly	Asp		
	1025					1030					1035					
Asn	Asp	Cys	Gly	Asp	Tyr	Ser	Asp	Glu	Thr	His	Ala	Asn	Cys	Thr		
	1040					1045					1050					
Asn	Gln	Ala	Thr	Arg	Pro	Pro	Gly	Gly	Cys	His	Ser	Asp	Glu	Phe		
	1055					1060					1065					
Gln	Cys	Pro	Leu	Asp	Gly	Leu	Cys	Ile	Pro	Leu	Arg	Trp	Arg	Cys		
	1070					1075					1080					
Asp	Gly	Asp	Thr	Asp	Cys	Met	Asp	Ser	Ser	Asp	Glu	Lys	Ser	Cys		
	1085					1090					1095					
Glu	Gly	Val	Thr	His	Val	Cys	Asp	Pro	Asn	Val	Lys	Phe	Gly	Cys		
	1100					1105					1110					
Lys	Asp	Ser	Ala	Arg	Cys	Ile	Ser	Lys	Ala	Trp	Val	Cys	Asp	Gly		
	1115					1120					1125					
Asp	Ser	Asp	Cys	Glu	Asp	Asn	Ser	Asp	Glu	Glu	Asn	Cys	Glu	Ala		
	1130					1135					1140					
Leu	Ala	Cys	Arg	Pro	Pro	Ser	His	Pro	Cys	Ala	Asn	Asn	Thr	Ser		
	1145					1150					1155					
Val	Cys	Leu	Pro	Pro	Asp	Lys	Leu	Cys	Asp	Gly	Lys	Asp	Asp	Cys		
	1160					1165					1170					
Gly	Asp	Gly	Ser	Asp	Glu	Gly	Glu	Leu	Cys	Asp	Gln	Cys	Ser	Leu		
	1175					1180					1185					
Asn	Asn	Gly	Gly	Cys	Ser	His	Asn	Cys	Ser	Val	Ala	Pro	Gly	Glu		
	1190					1195					1200					
Gly	Ile	Val	Cys	Ser	Cys	Pro	Leu	Gly	Met	Glu	Leu	Gly	Ser	Asp		
	1205					1210					1215					
Asn	His	Thr	Cys	Gln	Ile	Gln	Ser	Tyr	Cys	Ala	Lys	His	Leu	Lys		
	1220					1225					1230					
Cys	Ser	Gln	Lys	Cys	Asp	Gln	Asn	Lys	Phe	Ser	Val	Lys	Cys	Ser		
	1235					1240					1245					
Cys	Tyr	Glu	Gly	Trp	Val	Leu	Glu	Pro	Asp	Gly	Glu	Thr	Cys	Arg		
	1250					1255					1260					
Ser	Leu	Asp	Pro	Phe	Lys	Leu	Phe	Ile	Ile	Phe	Ser	Asn	Arg	His		
	1265					1270					1275					
Glu	Ile	Arg	Arg	Ile	Asp	Leu	His	Lys	Gly	Asp	Tyr	Ser	Val	Leu		

1280	1285	1290
Val Pro Gly Leu Arg Asn Thr 1295	Ile Ala Leu Asp Phe 1300	His Leu Ser 1305
Gln Ser Ala Leu Tyr Trp Thr 1310	Asp Ala Val Glu Asp 1315	Lys Ile Tyr 1320
Arg Gly Lys Leu Leu Asp Asn 1325	Gly Ala Leu Thr Ser 1330	Phe Glu Val 1335
Val Ile Gln Tyr Gly Leu Ala 1340	Thr Pro Glu Gly Leu 1345	Ala Val Asp 1350
Trp Ile Ala Gly Asn Ile Tyr 1355	Trp Val Glu Ser Asn 1360	Leu Asp Gln 1365
Ile Glu Val Ala Lys Leu Asp 1370	Gly Thr Leu Arg Thr 1375	Thr Leu Leu 1380
Ala Gly Asp Ile Glu His Pro 1385	Arg Ala Ile Ala Leu 1390	Asp Pro Arg 1395
Asp Gly Ile Leu Phe Trp Thr 1400	Asp Trp Asp Ala Ser 1405	Leu Pro Arg 1410
Ile Glu Ala Ala Ser Met Ser 1415	Gly Ala Gly Arg Arg 1420	Thr Ile His 1425
Arg Glu Thr Gly Ser Gly Gly 1430	Cys Ala Asn Gly Leu 1435	Thr Val Asp 1440
Tyr Leu Glu Lys Arg Ile Leu 1445	Trp Ile Asp Ala Arg 1450	Ser Asp Ala 1455
Ile Tyr Ser Ala Arg Tyr Asp 1460	Gly Ser Gly His Met 1465	Glu Val Leu 1470
Arg Gly His Glu Phe Leu Ser 1475	His Pro Phe Ala Val 1480	Thr Leu Tyr 1485
Gly Gly Glu Val Tyr Trp Thr 1490	Asp Trp Arg Thr Asn 1495	Thr Leu Ala 1500
Lys Ala Asn Lys Trp Thr Gly 1505	His Asn Val Thr Val 1510	Val Gln Arg 1515
Thr Asn Thr Gln Pro Phe Asp 1520	Leu Gln Val Tyr His 1525	Pro Ser Arg 1530
Gln Pro Met Ala Pro Asn Pro 1535	Cys Glu Ala Asn Gly 1540	Gly Arg Gly 1545
Pro Cys Ser His Leu Cys Leu 1550	Ile Asn Tyr Asn Arg 1555	Thr Val Ser 1560
Trp Ala Cys Pro His Leu Met 1565	Lys Leu His Lys Asp 1570	Asn Thr Thr 1575
Cys Tyr Glu Phe Lys Lys Phe	Leu Leu Tyr Ala Arg	Gln Met Glu

1580					1585					1590				
Ile	Arg	Gly	Val	Asp	Leu	Asp	Ala	Pro	Tyr	Tyr	Asn	Tyr	Ile	Ile
1595						1600					1605			
Ser	Phe	Thr	Val	Pro	Asp	Ile	Asp	Asn	Val	Thr	Val	Leu	Asp	Tyr
1610						1615					1620			
Asp	Ala	Arg	Glu	Gln	Arg	Val	Tyr	Trp	Ser	Asp	Val	Arg	Thr	Gln
1625						1630					1635			
Ala	Ile	Lys	Arg	Ala	Phe	Ile	Asn	Gly	Thr	Gly	Val	Glu	Thr	Val
1640						1645					1650			
Val	Ser	Ala	Asp	Leu	Pro	Asn	Ala	His	Gly	Leu	Ala	Val	Asp	Trp
1655						1660					1665			
Val	Ser	Arg	Asn	Leu	Phe	Trp	Thr	Ser	Tyr	Asp	Thr	Asn	Lys	Lys
1670						1675					1680			
Gln	Ile	Asn	Val	Ala	Arg	Leu	Asp	Gly	Ser	Phe	Lys	Asn	Ala	Val
1685						1690					1695			
Val	Gln	Gly	Leu	Glu	Gln	Pro	His	Gly	Leu	Val	Val	His	Pro	Leu
1700						1705					1710			
Arg	Gly	Lys	Leu	Tyr	Trp	Thr	Asp	Gly	Asp	Asn	Ile	Ser	Met	Ala
1715						1720					1725			
Asn	Met	Asp	Gly	Ser	Asn	His	Thr	Leu	Leu	Phe	Ser	Gly	Gln	Lys
1730						1735					1740			
Gly	Pro	Val	Gly	Leu	Ala	Ile	Asp	Phe	Pro	Glu	Ser	Lys	Leu	Tyr
1745						1750					1755			
Trp	Ile	Ser	Ser	Gly	Asn	His	Thr	Ile	Asn	Arg	Cys	Asn	Leu	Asp
1760						1765					1770			
Gly	Ser	Glu	Leu	Glu	Val	Ile	Asp	Thr	Met	Arg	Ser	Gln	Leu	Gly
1775						1780					1785			
Lys	Ala	Thr	Ala	Leu	Ala	Ile	Met	Gly	Asp	Lys	Leu	Trp	Trp	Ala
1790						1795					1800			
Asp	Gln	Val	Ser	Glu	Lys	Met	Gly	Thr	Cys	Asn	Lys	Ala	Asp	Gly
1805						1810					1815			
Ser	Gly	Ser	Val	Val	Leu	Arg	Asn	Ser	Thr	Thr	Leu	Val	Met	His
1820						1825					1830			
Met	Lys	Val	Tyr	Asp	Glu	Ser	Ile	Gln	Leu	Glu	His	Glu	Gly	Thr
1835						1840					1845			
Asn	Pro	Cys	Ser	Val	Asn	Asn	Gly	Asp	Cys	Ser	Gln	Leu	Cys	Leu
1850						1855					1860			
Pro	Thr	Ser	Glu	Thr	Thr	Arg	Ser	Cys	Met	Cys	Thr	Ala	Gly	Tyr
1865						1870					1875			
Ser	Leu	Arg	Ser	Gly	Gln	Gln	Ala	Cys	Glu	Gly	Val	Gly	Ser	Phe
1880						1885					1890			

Leu	Leu	Tyr	Ser	Val	His	Glu	Gly	Ile	Arg	Gly	Ile	Pro	Leu	Asp
1895						1900					1905			
Pro	Asn	Asp	Lys	Ser	Asp	Ala	Leu	Val	Pro	Val	Ser	Gly	Thr	Ser
1910						1915					1920			
Leu	Ala	Val	Gly	Ile	Asp	Phe	His	Ala	Glu	Asn	Asp	Thr	Ile	Tyr
1925						1930					1935			
Trp	Val	Asp	Met	Gly	Leu	Ser	Thr	Ile	Ser	Arg	Ala	Lys	Arg	Asp
1940						1945					1950			
Gln	Thr	Trp	Arg	Glu	Asp	Val	Val	Thr	Asn	Gly	Ile	Gly	Arg	Val
1955						1960					1965			
Glu	Gly	Ile	Ala	Val	Asp	Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Thr
1970						1975					1980			
Asp	Gln	Gly	Phe	Asp	Val	Ile	Glu	Val	Ala	Arg	Leu	Asn	Gly	Ser
1985						1990					1995			
Phe	Arg	Tyr	Val	Val	Ile	Ser	Gln	Gly	Leu	Asp	Lys	Pro	Arg	Ala
2000						2005					2010			
Ile	Thr	Val	His	Pro	Glu	Lys	Gly	Tyr	Leu	Phe	Trp	Thr	Glu	Trp
2015						2020					2025			
Gly	His	Tyr	Pro	Arg	Ile	Glu	Arg	Ser	Arg	Leu	Asp	Gly	Thr	Glu
2030						2035					2040			
Arg	Val	Val	Leu	Val	Asn	Val	Ser	Ile	Ser	Trp	Pro	Asn	Gly	Ile
2045						2050					2055			
Ser	Val	Asp	Tyr	Gln	Gly	Gly	Lys	Leu	Tyr	Trp	Cys	Asp	Ala	Arg
2060						2065					2070			
Met	Asp	Lys	Ile	Glu	Arg	Ile	Asp	Leu	Glu	Thr	Gly	Glu	Asn	Arg
2075						2080					2085			
Glu	Val	Val	Leu	Ser	Ser	Asn	Asn	Met	Asp	Met	Phe	Ser	Val	Ser
2090						2095					2100			
Val	Phe	Glu	Asp	Phe	Ile	Tyr	Trp	Ser	Asp	Arg	Thr	His	Ala	Asn
2105						2110					2115			
Gly	Ser	Ile	Lys	Arg	Gly	Cys	Lys	Asp	Asn	Ala	Thr	Asp	Ser	Val
2120						2125					2130			
Pro	Leu	Arg	Thr	Gly	Ile	Gly	Val	Gln	Leu	Lys	Asp	Ile	Lys	Val
2135						2140					2145			
Phe	Asn	Arg	Asp	Arg	Gln	Lys	Gly	Thr	Asn	Val	Cys	Ala	Val	Ala
2150						2155					2160			
Asn	Gly	Gly	Cys	Gln	Gln	Leu	Cys	Leu	Tyr	Arg	Gly	Gly	Gly	Gln
2165						2170					2175			
Arg	Ala	Cys	Ala	Cys	Ala	His	Gly	Met	Leu	Ala	Glu	Asp	Gly	Ala
2180						2185					2190			

Ser	Cys	Arg	Glu	Tyr	Ala	Gly	Tyr	Leu	Leu	Tyr	Ser	Glu	Arg	Thr
2195						2200					2205			
Ile	Leu	Lys	Ser	Ile	His	Leu	Ser	Asp	Glu	Arg	Asn	Leu	Asn	Ala
2210						2215					2220			
Pro	Val	Gln	Pro	Phe	Glu	Asp	Pro	Glu	His	Met	Lys	Asn	Val	Ile
2225						2230					2235			
Ala	Leu	Ala	Phe	Asp	Tyr	Arg	Ala	Gly	Thr	Ser	Pro	Gly	Thr	Pro
2240						2245					2250			
Asn	Arg	Ile	Phe	Phe	Ser	Asp	Ile	His	Phe	Gly	Asn	Ile	Gln	Gln
2255						2260					2265			
Ile	Asn	Asp	Asp	Gly	Ser	Gly	Arg	Thr	Thr	Ile	Val	Glu	Asn	Val
2270						2275					2280			
Gly	Ser	Val	Glu	Gly	Leu	Ala	Tyr	His	Arg	Gly	Trp	Asp	Thr	Leu
2285						2290					2295			
Tyr	Trp	Thr	Ser	Tyr	Thr	Thr	Ser	Thr	Ile	Thr	Arg	His	Thr	Val
2300						2305					2310			
Asp	Gln	Thr	Arg	Pro	Gly	Ala	Phe	Glu	Arg	Glu	Thr	Val	Ile	Thr
2315						2320					2325			
Met	Ser	Gly	Asp	Asp	His	Pro	Arg	Ala	Phe	Val	Leu	Asp	Glu	Cys
2330						2335					2340			
Gln	Asn	Leu	Met	Phe	Trp	Thr	Asn	Trp	Asn	Glu	Leu	His	Pro	Ser
2345						2350					2355			
Ile	Met	Arg	Ala	Ala	Leu	Ser	Gly	Ala	Asn	Val	Leu	Thr	Leu	Ile
2360						2365					2370			
Glu	Lys	Asp	Ile	Arg	Thr	Pro	Asn	Gly	Leu	Ala	Ile	Asp	His	Arg
2375						2380					2385			
Ala	Glu	Lys	Leu	Tyr	Phe	Ser	Asp	Ala	Thr	Leu	Asp	Lys	Ile	Glu
2390						2395					2400			
Arg	Cys	Glu	Tyr	Asp	Gly	Ser	His	Arg	Tyr	Val	Ile	Leu	Lys	Ser
2405						2410					2415			
Glu	Pro	Val	His	Pro	Phe	Gly	Leu	Ala	Val	Tyr	Gly	Glu	His	Ile
2420						2425					2430			
Phe	Trp	Thr	Asp	Trp	Val	Arg	Arg	Ala	Val	Gln	Arg	Ala	Asn	Lys
2435						2440					2445			
Tyr	Val	Gly	Ser	Asp	Met	Lys	Leu	Leu	Arg	Val	Asp	Ile	Pro	Gln
2450						2455					2460			
Gln	Pro	Met	Gly	Ile	Ile	Ala	Val	Ala	Asn	Asp	Thr	Asn	Ser	Cys
2465						2470					2475			
Glu	Leu	Ser	Pro	Cys	Arg	Ile	Asn	Asn	Gly	Gly	Cys	Gln	Asp	Leu
2480						2485					2490			
Cys	Leu	Leu	Thr	His	Gln	Gly	His	Val	Asn	Cys	Ser	Cys	Arg	Gly

2495	2500	2505
Gly Arg Ile Leu Gln Glu Asp Phe Thr Cys Arg Ala Val Asn Ser	2510	2515 2520
Ser Cys Arg Ala Gln Asp Glu Phe Glu Cys Ala Asn Gly Glu Cys	2525	2530 2535
Ile Ser Phe Ser Leu Thr Cys Asp Gly Val Ser His Cys Lys Asp	2540	2545 2550
Lys Ser Asp Glu Lys Pro Ser Tyr Cys Asn Ser Arg Arg Cys Lys	2555	2560 2565
Lys Thr Phe Arg Gln Cys Asn Asn Gly Arg Cys Val Ser Asn Met	2570	2575 2580
Leu Trp Cys Asn Gly Val Asp Tyr Cys Gly Asp Gly Ser Asp Glu	2585	2590 2595
Ile Pro Cys Asn Lys Thr Ala Cys Gly Val Gly Glu Phe Arg Cys	2600	2605 2610
Arg Asp Gly Ser Cys Ile Gly Asn Ser Ser Arg Cys Asn Gln Phe	2615	2620 2625
Val Asp Cys Glu Asp Ala Ser Asp Glu Met Asn Cys Ser Ala Thr	2630	2635 2640
Asp Cys Ser Ser Tyr Phe Arg Leu Gly Val Lys Gly Val Leu Phe	2645	2650 2655
Gln Pro Cys Glu Arg Thr Ser Leu Cys Tyr Ala Pro Ser Trp Val	2660	2665 2670
Cys Asp Gly Ala Asn Asp Cys Gly Asp Tyr Ser Asp Glu Arg Asp	2675	2680 2685
Cys Pro Gly Val Lys Arg Pro Arg Cys Pro Leu Asn Tyr Phe Ala	2690	2695 2700
Cys Pro Ser Gly Arg Cys Ile Pro Met Ser Trp Thr Cys Asp Lys	2705	2710 2715
Glu Asp Asp Cys Glu Asn Gly Glu Asp Glu Thr His Cys Asn Lys	2720	2725 2730
Phe Cys Ser Glu Ala Gln Phe Glu Cys Gln Asn His Arg Cys Ile	2735	2740 2745
Ser Lys Gln Trp Leu Cys Asp Gly Ser Asp Asp Cys Gly Asp Gly	2750	2755 2760
Ser Asp Glu Ala Ala His Cys Glu Gly Lys Thr Cys Gly Pro Ser	2765	2770 2775
Ser Phe Ser Cys Pro Gly Thr His Val Cys Val Pro Glu Arg Trp	2780	2785 2790
Leu Cys Asp Gly Asp Lys Asp Cys Thr Asp Gly Ala Asp Glu Ser	2795	2800 2805

Val	Thr	Ala	Gly	Cys	Leu	Tyr	Asn	Ser	Thr	Cys	Asp	Asp	Arg	Glu
	2810					2815					2820			
Phe	Met	Cys	Gln	Asn	Arg	Leu	Cys	Ile	Pro	Lys	His	Phe	Val	Cys
	2825					2830					2835			
Asp	His	Asp	Arg	Asp	Cys	Ala	Asp	Gly	Ser	Asp	Glu	Ser	Pro	Glu
	2840					2845					2850			
Cys	Glu	Tyr	Pro	Thr	Cys	Gly	Pro	Asn	Glu	Phe	Arg	Cys	Ala	Asn
	2855					2860					2865			
Gly	Arg	Cys	Leu	Ser	Ser	Arg	Gln	Trp	Glu	Cys	Asp	Gly	Glu	Asn
	2870					2875					2880			
Asp	Cys	His	Asp	His	Ser	Asp	Glu	Ala	Pro	Lys	Asn	Pro	His	Cys
	2885					2890					2895			
Thr	Ser	Pro	Glu	His	Lys	Cys	Asn	Ala	Ser	Ser	Gln	Phe	Leu	Cys
	2900					2905					2910			
Ser	Ser	Gly	Arg	Cys	Val	Ala	Glu	Ala	Leu	Leu	Cys	Asn	Gly	Gln
	2915					2920					2925			
Asp	Asp	Cys	Gly	Asp	Gly	Ser	Asp	Glu	Arg	Gly	Cys	His	Val	Asn
	2930					2935					2940			
Glu	Cys	Leu	Ser	Arg	Lys	Leu	Ser	Gly	Cys	Ser	Gln	Asp	Cys	Glu
	2945					2950					2955			
Asp	Leu	Lys	Ile	Gly	Phe	Lys	Cys	Arg	Cys	Arg	Pro	Gly	Phe	Arg
	2960					2965					2970			
Leu	Lys	Asp	Asp	Gly	Arg	Thr	Cys	Ala	Asp	Leu	Asp	Glu	Cys	Ser
	2975					2980					2985			
Thr	Thr	Phe	Pro	Cys	Ser	Gln	Leu	Cys	Ile	Asn	Thr	His	Gly	Ser
	2990					2995					3000			
Tyr	Lys	Cys	Leu	Cys	Val	Glu	Gly	Tyr	Ala	Pro	Arg	Gly	Gly	Asp
	3005					3010					3015			
Pro	His	Ser	Cys	Lys	Ala	Val	Thr	Asp	Glu	Glu	Pro	Phe	Leu	Ile
	3020					3025					3030			
Phe	Ala	Asn	Arg	Tyr	Tyr	Leu	Arg	Lys	Leu	Asn	Leu	Asp	Gly	Ser
	3035					3040					3045			
Asn	Tyr	Thr	Leu	Leu	Lys	Gln	Gly	Leu	Asn	Asn	Ala	Val	Ala	Leu
	3050					3055					3060			
Ala	Phe	Asp	Tyr	Arg	Glu	Gln	Met	Ile	Tyr	Trp	Thr	Gly	Val	Thr
	3065					3070					3075			
Thr	Gln	Gly	Ser	Met	Ile	Arg	Arg	Met	His	Leu	Asn	Gly	Ser	Asn
	3080					3085					3090			
Val	Gln	Val	Leu	His	Arg	Thr	Gly	Leu	Ser	Asn	Pro	Asp	Gly	Leu
	3095					3100					3105			

Ala	Val	Asp	Trp	Val	Gly	Gly	Asn	Leu	Tyr	Trp	Cys	Asp	Lys	Gly
3110						3115					3120			
Arg	Asp	Thr	Ile	Glu	Val	Ser	Lys	Leu	Asn	Gly	Ala	Tyr	Arg	Thr
3125						3130					3135			
Val	Leu	Val	Ser	Ser	Gly	Leu	Arg	Glu	Pro	Arg	Ala	Leu	Val	Val
3140						3145					3150			
Asp	Val	Gln	Asn	Gly	Tyr	Leu	Tyr	Trp	Thr	Asp	Trp	Gly	Asp	His
3155						3160					3165			
Ser	Leu	Ile	Gly	Arg	Ile	Gly	Met	Asp	Gly	Ser	Gly	Arg	Ser	Ile
3170						3175					3180			
Ile	Val	Asp	Thr	Lys	Ile	Thr	Trp	Pro	Asn	Gly	Leu	Thr	Val	Asp
3185						3190					3195			
Tyr	Val	Thr	Glu	Arg	Ile	Tyr	Trp	Ala	Asp	Ala	Arg	Glu	Asp	Tyr
3200						3205					3210			
Ile	Glu	Phe	Ala	Ser	Leu	Asp	Gly	Ser	Asn	Arg	His	Val	Val	Leu
3215						3220					3225			
Ser	Gln	Asp	Ile	Pro	His	Ile	Phe	Ala	Leu	Thr	Leu	Phe	Glu	Asp
3230						3235					3240			
Tyr	Val	Tyr	Trp	Thr	Asp	Trp	Glu	Thr	Lys	Ser	Ile	Asn	Arg	Ala
3245						3250					3255			
His	Lys	Thr	Thr	Gly	Ala	Asn	Lys	Thr	Leu	Leu	Ile	Ser	Thr	Leu
3260						3265					3270			
His	Arg	Pro	Met	Asp	Leu	His	Val	Phe	His	Ala	Leu	Arg	Gln	Pro
3275						3280					3285			
Asp	Val	Pro	Asn	His	Pro	Cys	Lys	Val	Asn	Asn	Gly	Gly	Cys	Ser
3290						3295					3300			
Asn	Leu	Cys	Leu	Leu	Ser	Pro	Gly	Gly	Gly	His	Lys	Cys	Ala	Cys
3305						3310					3315			
Pro	Thr	Asn	Phe	Tyr	Leu	Gly	Gly	Asp	Gly	Arg	Thr	Cys	Val	Ser
3320						3325					3330			
Asn	Cys	Thr	Ala	Ser	Gln	Phe	Val	Cys	Lys	Asn	Asp	Lys	Cys	Ile
3335						3340					3345			
Pro	Phe	Trp	Trp	Lys	Cys	Asp	Thr	Glu	Asp	Asp	Cys	Gly	Asp	His
3350						3355					3360			
Ser	Asp	Glu	Pro	Pro	Asp	Cys	Pro	Glu	Phe	Lys	Cys	Arg	Pro	Gly
3365						3370					3375			
Gln	Phe	Gln	Cys	Ser	Thr	Gly	Ile	Cys	Thr	Asn	Pro	Ala	Phe	Ile
3380						3385					3390			
Cys	Asp	Gly	Asp	Asn	Asp	Cys	Gln	Asp	Asn	Ser	Asp	Glu	Ala	Asn
3395						3400					3405			
Cys	Asp	Ile	His	Val	Cys	Leu	Pro	Ser	Gln	Phe	Lys	Cys	Thr	Asn



3410		3415		3420
Thr Asn Arg Cys Ile Pro Gly Ile Phe Arg Cys Asn Gly Gln Asp 3425 3430 3435				
Asn Cys Gly Asp Gly Glu Asp Glu Arg Asp Cys Pro Glu Val Thr 3440 3445 3450				
Cys Ala Pro Asn Gln Phe Gln Cys Ser Ile Thr Lys Arg Cys Ile 3455 3460 3465				
Pro Arg Val Trp Val Cys Asp Arg Asp Asn His Cys Val Asp Gly 3470 3475 3480				
Ser Asp Glu Pro Ala Asn Cys Thr Gln Met Thr Cys Gly Val Asp 3485 3490 3495				
Glu Phe Arg Cys Lys Asp Ser Gly Arg Cys Ile Pro Ala Arg Trp 3500 3505 3510				
Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly Ser Asp Glu Pro 3515 3520 3525				
Lys Glu Glu Cys Asp Glu Arg Thr Cys Glu Pro Tyr Gln Phe Arg 3530 3535 3540				
Cys Lys Asn Asn Arg Cys Val Pro Gly Arg Trp Gln Cys Asp Tyr 3545 3550 3555				
Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Glu Ser Cys Thr Pro 3560 3565 3570				
Arg Pro Cys Ser Glu Ser Glu Phe Phe Cys Ala Asn Gly Arg Cys 3575 3580 3585				
Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp Cys Ala Asp 3590 3595 3600				
Gly Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met Asp Gln 3605 3610 3615				
Phe Gln Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Pro Cys 3620 3625 3630				
Asp Ala Asp Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys 3635 3640 3645				
Gly Thr Gly Val Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn 3650 3655 3660				
Asn Thr Leu Cys Lys Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp 3665 3670 3675				
Asp Cys Gly Asp Asn Ser Asp Glu Asn Pro Glu Glu Cys Ala Arg 3680 3685 3690				
Phe Ile Cys Pro Pro Asn Arg Pro Phe Arg Cys Lys Asn Asp Arg 3695 3700 3705				
Val Cys Leu Trp Ile Gly Arg Gln Cys Asp Gly Val Asp Asn Cys 3710 3715 3720				

Gly Asp 3725	Gly Thr Asp Glu Glu 3730	Asp Cys Glu Pro Pro 3735	Thr Ala Gln
Asn Pro 3740	His Cys Lys Asp Lys 3745	Lys Glu Phe Leu Cys 3750	Arg Asn Gln
Arg Cys 3755	Leu Ser Ser Ser Leu 3760	Arg Cys Asn Met Phe 3765	Asp Asp Cys
Gly Asp 3770	Gly Ser Asp Glu Glu 3775	Asp Cys Ser Ile Asp 3780	Pro Lys Leu
Thr Ser 3785	Cys Ala Thr Asn Ala 3790	Ser Met Cys Gly Asp 3795	Glu Ala Arg
Cys Val 3800	Arg Thr Glu Lys Ala 3805	Ala Tyr Cys Ala Cys 3810	Arg Ser Gly
Phe His 3815	Thr Val Pro Gly Gln 3820	Pro Gly Cys Gln Asp 3825	Ile Asn Glu
Cys Leu 3830	Arg Phe Gly Thr Cys 3835	Ser Gln Leu Trp Asn 3840	Lys Pro Lys
Gly Gly 3845	His Leu Cys Ser Cys 3850	Ala Arg Asn Phe Met 3855	Lys Thr His
Asn Thr 3860	Cys Lys Ala Glu Gly 3865	Ser Glu Tyr Gln Val 3870	Leu Tyr Ile
Ala Asp 3875	Asp Asn Glu Ile Arg 3880	Ser Leu Phe Pro Gly 3885	His Pro His
Ser Ala 3890	Tyr Glu Gln Thr Phe 3895	Gln Gly Asp Glu Ser 3900	Val Arg Ile
Asp Ala 3905	Met Asp Val His Val 3910	Lys Ala Gly Arg Val 3915	Tyr Trp Thr
Asn Trp 3920	His Thr Gly Thr Ile 3925	Ser Tyr Arg Ser Leu 3930	Pro Pro Ala
Ala Pro 3935	Pro Thr Thr Ser Asn 3940	Arg His Arg Arg Gln 3945	Ile Asp Arg
Gly Val 3950	Thr His Leu Asn Ile 3955	Ser Gly Leu Lys Met 3960	Pro Arg Gly
Ile Ala 3965	Ile Asp Trp Val Ala 3970	Gly Asn Val Tyr Trp 3975	Thr Asp Ser
Gly Arg 3980	Asp Val Ile Glu Val 3985	Ala Gln Met Lys Gly 3990	Glu Asn Arg
Lys Thr 3995	Leu Ile Ser Gly Met 4000	Ile Asp Glu Pro His 4005	Ala Ile Val
Val Asp 4010	Pro Leu Arg Gly Thr 4015	Met Tyr Trp Ser Asp 4020	Trp Gly Asn

His	Pro	Lys	Ile	Glu	Thr	Ala	Ala	Met	Asp	Gly	Thr	Leu	Arg	Glu
4025						4030					4035			
Thr	Leu	Val	Gln	Asp	Asn	Ile	Gln	Trp	Pro	Thr	Gly	Leu	Ala	Val
4040						4045					4050			
Asp	Tyr	His	Asn	Glu	Arg	Leu	Tyr	Trp	Ala	Asp	Ala	Lys	Leu	Ser
4055						4060					4065			
Val	Ile	Gly	Ser	Ile	Arg	Leu	Asn	Gly	Thr	Asp	Pro	Ile	Val	Ala
4070						4075					4080			
Ala	Asp	Ser	Lys	Arg	Gly	Leu	Ser	His	Pro	Phe	Ser	Ile	Asp	Val
4085						4090					4095			
Phe	Glu	Asp	Tyr	Ile	Tyr	Gly	Val	Thr	Tyr	Ile	Asn	Asn	Arg	Val
4100						4105					4110			
Phe	Lys	Ile	His	Lys	Phe	Gly	His	Ser	Pro	Leu	Tyr	Asn	Leu	Thr
4115						4120					4125			
Gly	Gly	Leu	Ser	His	Ala	Ser	Asp	Val	Val	Leu	Tyr	His	Gln	His
4130						4135					4140			
Lys	Gln	Pro	Glu	Val	Thr	Asn	Pro	Cys	Asp	Arg	Lys	Lys	Cys	Glu
4145						4150					4155			
Trp	Leu	Cys	Leu	Leu	Ser	Pro	Ser	Gly	Pro	Val	Cys	Thr	Cys	Pro
4160						4165					4170			
Asn	Gly	Lys	Arg	Leu	Asp	Asn	Gly	Thr	Cys	Val	Pro	Val	Pro	Ser
4175						4180					4185			
Pro	Thr	Pro	Pro	Pro	Asp	Ala	Pro	Arg	Pro	Gly	Thr	Cys	Thr	Leu
4190						4195					4200			
Gln	Cys	Phe	Asn	Gly	Gly	Ser	Cys	Phe	Leu	Asn	Ala	Arg	Arg	Gln
4205						4210					4215			
Pro	Lys	Cys	Arg	Cys	Gln	Pro	Arg	Tyr	Thr	Gly	Asp	Lys	Cys	Glu
4220						4225					4230			
Leu	Asp	Gln	Cys	Trp	Glu	Tyr	Cys	His	Asn	Gly	Gly	Thr	Cys	Ala
4235						4240					4245			
Ala	Ser	Pro	Ser	Gly	Met	Pro	Thr	Cys	Arg	Cys	Pro	Thr	Gly	Phe
4250						4255					4260			
Thr	Gly	Pro	Lys	Cys	Thr	Ala	Gln	Val	Cys	Ala	Gly	Tyr	Cys	Ser
4265						4270					4275			
Asn	Asn	Ser	Thr	Cys	Thr	Val	Asn	Gln	Gly	Asn	Gln	Pro	Gln	Cys
4280						4285					4290			
Arg	Cys	Leu	Pro	Gly	Phe	Leu	Gly	Asp	Arg	Cys	Gln	Tyr	Arg	Gln
4295						4300					4305			
Cys	Ser	Gly	Phe	Cys	Glu	Asn	Phe	Gly	Thr	Cys	Gln	Met	Ala	Ala
4310						4315					4320			
Asp	Gly	Ser	Arg	Gln	Cys	Arg	Cys	Thr	Val	Tyr	Phe	Glu	Gly	Pro

4325	4330	4335
Arg Cys Glu Val Asn Lys Cys Ser Arg Cys Leu Gln Gly Ala Cys		
4340	4345	4350
Val Val Asn Lys Gln Thr Gly Asp Val Thr Cys Asn Cys Thr Asp		
4355	4360	4365
Gly Arg Val Ala Pro Ser Cys Leu Thr Cys Ile Asp His Cys Ser		
4370	4375	4380
Asn Gly Gly Ser Cys Thr Met Asn Ser Lys Met Met Pro Glu Cys		
4385	4390	4395
Gln Cys Pro Pro His Met Thr Gly Pro Arg Cys Gln Glu Gln Val		
4400	4405	4410
Val Ser Gln Gln Gln Pro Gly His Met Ala Ser Ile Leu Ile Pro		
4415	4420	4425
Leu Leu Leu Leu Leu Leu Leu Leu Val Ala Gly Val Val Phe		
4430	4435	4440
Trp Tyr Lys Arg Arg Val Arg Gly Ala Lys Gly Phe Gln His Gln		
4445	4450	4455
Arg Met Thr Asn Gly Ala Met Asn Val Glu Ile Gly Asn Pro Thr		
4460	4465	4470
Tyr Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp Val Gly Gly Leu		
4475	4480	4485
Leu Asp Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro Thr Asn Phe		
4490	4495	4500
Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met Gly Gly His Gly Ser		
4505	4510	4515
Arg His Ser Leu Ala Ser Thr Asp Glu Lys Arg Glu Leu Leu Gly		
4520	4525	4530
Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu Ala		
4535	4540	4545

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 <212> PRT  
 <213> Homo sapiens

<400> 3

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Val Leu Leu Pro Thr Asp Ala Ser Val Ser Gly Lys Pro Gln Tyr Met
20 25 30
Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys
35 40 45

Val	Leu	Leu	Ser	Tyr	Leu	Asn	Glu	Thr	Val	Thr	Val	Ser	Ala	Ser	Leu	50	55	60	
Glu	Ser	Val	Arg	Gly	Asn	Arg	Ser	Leu	Phe	Thr	Asp	Leu	Glu	Ala	Glu	65	70	75	80
Asn	Asp	Val	Leu	His	Cys	Val	Ala	Phe	Ala	Val	Pro	Lys	Ser	Ser	Ser	85	90	95	
Asn	Glu	Glu	Val	Met	Phe	Leu	Thr	Val	Gln	Val	Lys	Gly	Pro	Thr	Gln	100	105	110	
Glu	Phe	Lys	Lys	Arg	Thr	Thr	Val	Met	Val	Lys	Asn	Glu	Asp	Ser	Leu	115	120	125	
Val	Phe	Val	Gln	Thr	Asp	Lys	Ser	Ile	Tyr	Lys	Pro	Gly	Gln	Thr	Val	130	135	140	
Lys	Phe	Arg	Val	Val	Ser	Met	Asp	Glu	Asn	Phe	His	Pro	Leu	Asn	Glu	145	150	155	160
Leu	Ile	Pro	Leu	Val	Tyr	Ile	Gln	Asp	Pro	Lys	Gly	Asn	Arg	Ile	Ala	165	170	175	
Gln	Trp	Gln	Ser	Phe	Gln	Leu	Glu	Gly	Gly	Leu	Lys	Gln	Phe	Ser	Phe	180	185	190	
Pro	Leu	Ser	Ser	Glu	Pro	Phe	Gln	Gly	Ser	Tyr	Lys	Val	Val	Val	Gln	195	200	205	
Lys	Lys	Ser	Gly	Gly	Arg	Thr	Glu	His	Pro	Phe	Thr	Val	Glu	Glu	Phe	210	215	220	
Val	Leu	Pro	Lys	Phe	Glu	Val	Gln	Val	Thr	Val	Pro	Lys	Ile	Ile	Thr	225	230	235	240
Ile	Leu	Glu	Glu	Glu	Met	Asn	Val	Ser	Val	Cys	Gly	Leu	Tyr	Thr	Tyr	245	250	255	
Gly	Lys	Pro	Val	Pro	Gly	His	Val	Thr	Val	Ser	Ile	Cys	Arg	Lys	Tyr	260	265	270	
Ser	Asp	Ala	Ser	Asp	Cys	His	Gly	Glu	Asp	Ser	Gln	Ala	Phe	Cys	Glu	275	280	285	
Lys	Phe	Ser	Gly	Gln	Leu	Asn	Ser	His	Gly	Cys	Phe	Tyr	Gln	Gln	Val	290	295	300	
Lys	Thr	Lys	Val	Phe	Gln	Leu	Lys	Arg	Lys	Glu	Tyr	Glu	Met	Lys	Leu	305	310	315	320
His	Thr	Glu	Ala	Gln	Ile	Gln	Glu	Glu	Gly	Thr	Val	Val	Glu	Leu	Thr	325	330	335	
Gly	Arg	Gln	Ser	Ser	Glu	Ile	Thr	Arg	Thr	Ile	Thr	Lys	Leu	Ser	Phe	340	345	350	
Val	Lys	Val	Asp	Ser	His	Phe	Arg	Gln	Gly	Ile	Pro	Phe	Phe	Gly	Gln	355	360	365	
Val	Arg	Leu	Val	Asp	Gly	Lys	Gly	Val	Pro	Ile	Pro	Asn	Lys	Val	Ile				

370					375					380					
Phe	Ile	Arg	Gly	Asn	Glu	Ala	Asn	Tyr	Tyr	Ser	Asn	Ala	Thr	Thr	Asp
385					390					395					400
Glu	His	Gly	Leu	Val	Gln	Phe	Ser	Ile	Asn	Thr	Thr	Asn	Val	Met	Gly
				405					410					415	
Thr	Ser	Leu	Thr	Val	Arg	Val	Asn	Tyr	Lys	Asp	Arg	Ser	Pro	Cys	Tyr
			420					425					430		
Gly	Tyr	Gln	Trp	Val	Ser	Glu	Glu	His	Glu	Glu	Ala	His	His	Thr	Ala
		435						440				445			
Tyr	Leu	Val	Phe	Ser	Pro	Ser	Lys	Ser	Phe	Val	His	Leu	Glu	Pro	Met
	450					455					460				
Ser	His	Glu	Leu	Pro	Cys	Gly	His	Thr	Gln	Thr	Val	Gln	Ala	His	Tyr
465					470					475					480
Ile	Leu	Asn	Gly	Gly	Thr	Leu	Leu	Gly	Leu	Lys	Lys	Leu	Ser	Phe	Tyr
			485						490					495	
Tyr	Leu	Ile	Met	Ala	Lys	Gly	Gly	Ile	Val	Arg	Thr	Gly	Thr	His	Gly
			500					505					510		
Leu	Leu	Val	Lys	Gln	Glu	Asp	Met	Lys	Gly	His	Phe	Ser	Ile	Ser	Ile
		515					520					525			
Pro	Val	Lys	Ser	Asp	Ile	Ala	Pro	Val	Ala	Arg	Leu	Leu	Ile	Tyr	Ala
	530					535					540				
Val	Leu	Pro	Thr	Gly	Asp	Val	Ile	Gly	Asp	Ser	Ala	Lys	Tyr	Asp	Val
545					550					555					560
Glu	Asn	Cys	Leu	Ala	Asn	Lys	Val	Asp	Leu	Ser	Phe	Ser	Pro	Ser	Gln
				565					570					575	
Ser	Leu	Pro	Ala	Ser	His	Ala	His	Leu	Arg	Val	Thr	Ala	Ala	Pro	Gln
			580					585					590		
Ser	Val	Cys	Ala	Leu	Arg	Ala	Val	Asp	Gln	Ser	Val	Leu	Leu	Met	Lys
	595						600					605			
Pro	Asp	Ala	Glu	Leu	Ser	Ala	Ser	Ser	Val	Tyr	Asn	Leu	Leu	Pro	Glu
	610					615					620				
Lys	Asp	Leu	Thr	Gly	Phe	Pro	Gly	Pro	Leu	Asn	Asp	Gln	Asp	Asp	Glu
625					630					635					640
Asp	Cys	Ile	Asn	Arg	His	Asn	Val	Tyr	Ile	Asn	Gly	Ile	Thr	Tyr	Thr
			645						650					655	
Pro	Val	Ser	Ser	Thr	Asn	Glu	Lys	Asp	Met	Tyr	Ser	Phe	Leu	Glu	Asp
			660					665					670		
Met	Gly	Leu	Lys	Ala	Phe	Thr	Asn	Ser	Lys	Ile	Arg	Lys	Pro	Lys	Met
		675					680					685			
Cys	Pro	Gln	Leu	Gln	Gln	Tyr	Glu	Met	His	Gly	Pro	Glu	Gly	Leu	Arg

690	695	700
Val Gly Phe Tyr Glu Ser Asp Val Met Gly Arg Gly His Ala Arg Leu 705 710 715 720		
Val His Val Glu Glu Pro His Thr Glu Thr Val Arg Lys Tyr Phe Pro 725 730 735		
Glu Thr Trp Ile Trp Asp Leu Val Val Val Asn Ser Ala Gly Val Ala 740 745 750		
Glu Val Gly Val Thr Val Pro Asp Thr Ile Thr Glu Trp Lys Ala Gly 755 760 765		
Ala Phe Cys Leu Ser Glu Asp Ala Gly Leu Gly Ile Ser Ser Thr Ala 770 775 780		
Ser Leu Arg Ala Phe Gln Pro Phe Phe Val Glu Leu Thr Met Pro Tyr 785 790 795 800		
Ser Val Ile Arg Gly Glu Ala Phe Thr Leu Lys Ala Thr Val Leu Asn 805 810 815		
Tyr Leu Pro Lys Cys Ile Arg Val Ser Val Gln Leu Glu Ala Ser Pro 820 825 830		
Ala Phe Leu Ala Val Pro Val Glu Lys Glu Gln Ala Pro His Cys Ile 835 840 845		
Cys Ala Asn Gly Arg Gln Thr Val Ser Trp Ala Val Thr Pro Lys Ser 850 855 860		
Leu Gly Asn Val Asn Phe Thr Val Ser Ala Glu Ala Leu Glu Ser Gln 865 870 875 880		
Glu Leu Cys Gly Thr Glu Val Pro Ser Val Pro Glu His Gly Arg Lys 885 890 895		
Asp Thr Val Ile Lys Pro Leu Leu Val Glu Pro Glu Gly Leu Glu Lys 900 905 910		
Glu Thr Thr Phe Asn Ser Leu Leu Cys Pro Ser Gly Gly Glu Val Ser 915 920 925		
Glu Glu Leu Ser Leu Lys Leu Pro Pro Asn Val Val Glu Glu Ser Ala 930 935 940		
Arg Ala Ser Val Ser Val Leu Gly Asp Ile Leu Gly Ser Ala Met Gln 945 950 955 960		
Asn Thr Gln Asn Leu Leu Gln Met Pro Tyr Gly Cys Gly Glu Gln Asn 965 970 975		
Met Val Leu Phe Ala Pro Asn Ile Tyr Val Leu Asp Tyr Leu Asn Glu 980 985 990		
Thr Gln Gln Leu Thr Pro Glu Val Lys Ser Lys Ala Ile Gly Tyr Leu 995 1000 1005		
Asn Thr Gly Tyr Gln Arg Gln Leu Asn Tyr Lys His Tyr Asp Gly 1010 1015 1020		

Ser	Tyr	Ser	Thr	Phe	Gly	Glu	Arg	Tyr	Gly	Arg	Asn	Gln	Gly	Asn
1025						1030					1035			
Thr	Trp	Leu	Thr	Ala	Phe	Val	Leu	Lys	Thr	Phe	Ala	Gln	Ala	Arg
1040						1045					1050			
Ala	Tyr	Ile	Phe	Ile	Asp	Glu	Ala	His	Ile	Thr	Gln	Ala	Leu	Ile
1055						1060					1065			
Trp	Leu	Ser	Gln	Arg	Gln	Lys	Asp	Asn	Gly	Cys	Phe	Arg	Ser	Ser
1070						1075					1080			
Gly	Ser	Leu	Leu	Asn	Asn	Ala	Ile	Lys	Gly	Gly	Val	Glu	Asp	Glu
1085						1090					1095			
Val	Thr	Leu	Ser	Ala	Tyr	Ile	Thr	Ile	Ala	Leu	Leu	Glu	Ile	Pro
1100						1105					1110			
Leu	Thr	Val	Thr	His	Pro	Val	Val	Arg	Asn	Ala	Leu	Phe	Cys	Leu
1115						1120					1125			
Glu	Ser	Ala	Trp	Lys	Thr	Ala	Gln	Glu	Gly	Asp	His	Gly	Ser	His
1130						1135					1140			
Val	Tyr	Thr	Lys	Ala	Leu	Leu	Ala	Tyr	Ala	Phe	Ala	Leu	Ala	Gly
1145						1150					1155			
Asn	Gln	Asp	Lys	Arg	Lys	Glu	Val	Leu	Lys	Ser	Leu	Asn	Glu	Glu
1160						1165					1170			
Ala	Val	Lys	Lys	Asp	Asn	Ser	Val	His	Trp	Glu	Arg	Pro	Gln	Lys
1175						1180					1185			
Pro	Lys	Ala	Pro	Val	Gly	His	Phe	Tyr	Glu	Pro	Gln	Ala	Pro	Ser
1190						1195					1200			
Ala	Glu	Val	Glu	Met	Thr	Ser	Tyr	Val	Leu	Leu	Ala	Tyr	Leu	Thr
1205						1210					1215			
Ala	Gln	Pro	Ala	Pro	Thr	Ser	Glu	Asp	Leu	Thr	Ser	Ala	Thr	Asn
1220						1225					1230			
Ile	Val	Lys	Trp	Ile	Thr	Lys	Gln	Gln	Asn	Ala	Gln	Gly	Gly	Phe
1235						1240					1245			
Ser	Ser	Thr	Gln	Asp	Thr	Val	Val	Ala	Leu	His	Ala	Leu	Ser	Lys
1250						1255					1260			
Tyr	Gly	Ala	Ala	Thr	Phe	Thr	Arg	Thr	Gly	Lys	Ala	Ala	Gln	Val
1265						1270					1275			
Thr	Ile	Gln	Ser	Ser	Gly	Thr	Phe	Ser	Ser	Lys	Phe	Gln	Val	Asp
1280						1285					1290			
Asn	Asn	Asn	Arg	Leu	Leu	Leu	Gln	Gln	Val	Ser	Leu	Pro	Glu	Leu
1295						1300					1305			
Pro	Gly	Glu	Tyr	Ser	Met	Lys	Val	Thr	Gly	Glu	Gly	Cys	Val	Tyr
1310						1315					1320			



Leu	Gln	Thr	Ser	Leu	Lys	Tyr	Asn	Ile	Leu	Pro	Glu	Lys	Glu	Glu
1325						1330					1335			
Phe	Pro	Phe	Ala	Leu	Gly	Val	Gln	Thr	Leu	Pro	Gln	Thr	Cys	Asp
1340						1345					1350			
Glu	Pro	Lys	Ala	His	Thr	Ser	Phe	Gln	Ile	Ser	Leu	Ser	Val	Ser
1355						1360					1365			
Tyr	Thr	Gly	Ser	Arg	Ser	Ala	Ser	Asn	Met	Ala	Ile	Val	Asp	Val
1370						1375					1380			
Lys	Met	Val	Ser	Gly	Phe	Ile	Pro	Leu	Lys	Pro	Thr	Val	Lys	Met
1385						1390					1395			
Leu	Glu	Arg	Ser	Asn	His	Val	Ser	Arg	Thr	Glu	Val	Ser	Ser	Asn
1400						1405					1410			
His	Val	Leu	Ile	Tyr	Leu	Asp	Lys	Val	Ser	Asn	Gln	Thr	Leu	Ser
1415						1420					1425			
Leu	Phe	Phe	Thr	Val	Leu	Gln	Asp	Val	Pro	Val	Arg	Asp	Leu	Lys
1430						1435					1440			
Pro	Ala	Ile	Val	Lys	Val	Tyr	Asp	Tyr	Tyr	Glu	Thr	Asp	Glu	Phe
1445						1450					1455			
Ala	Ile	Ala	Glu	Tyr	Asn	Ala	Pro	Cys	Ser	Lys	Asp	Leu	Gly	Asn
1460						1465					1470			

Ala

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 <211> 4577  
 <212> DNA  
 <213> Homo sapiens

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cctcaagcaa ttttcttttc ccctctcatc agagcccttc cagggtcctt acaaggtggt	660

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toccaaagttt gaagtacaag taacagtgcc aaagataatc accatcttgg aagaagagat	780
gaatgtatca gtgtgtggcc tatacacata tgggaagcct gtccctggac atgtgactgt	840
gagcatttgc agaaagtata gtgacgcttc cgactgccac ggtgaagatt cacaggcttt	900
ctgtgagaaa ttcagtggac agctaaacag ccatggctgc ttctatcagc aagtaaaaaac	960
caaggtcttc cagctgaaga ggaaggagta tgaaatgaaa cttcacactg aggcccagat	1020
ccaagaagaa ggaacagtgg tggaattgac tggaaggcag tccagtgaaa tcacaagaac	1080
cataaccaa ctctcatttg tgaaagtgga ctcacacttt cgacagggaa ttcccttctt	1140
tgggcaggtg cgcctagtag atgggaaagg cgtccctata ccaaataaag tcatattcat	1200
cagaggaaat gaagcaaact attactcaa tgctaccacg gatgagcatg gccttgtaca	1260
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actgagcttg ttcttcacgg ttctgcaaga tgtcccagta agagatctca aaccagccat 4380
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<210> 5
<211> 138
<212> PRT
<213> Homo sapiens

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<400> 5
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Glu Glu Phe Pro Phe Ala Leu Gly Val Gln Thr Leu Pro Gln Thr Cys
1          5          10          15
Asp Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser Leu Ser Val Ser
20          25          30
Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile Val Asp Val Lys
35          40          45
Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr Val Lys Met Leu Glu
50          55          60
Arg Ser Asn His Val Ser Arg Thr Glu Val Ser Ser Asn His Val Leu
65          70          75          80
Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr Leu Ser Leu Phe Phe Thr
85          90          95
Val Leu Gln Asp Val Pro Val Arg Asp Leu Lys Pro Ala Ile Val Lys
100         105         110
Val Tyr Asp Tyr Tyr Glu Thr Asp Glu Phe Ala Ile Ala Glu Tyr Asn
115         120         125
Ala Pro Cys Ser Lys Asp Leu Gly Asn Ala
130         135

```

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<210> 6
<211> 10
<212> PRT
<213> Homo sapiens

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```
<400> 6
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Gly Gly Ala Leu His Ile Tyr His Gln Arg
1          5          10

```

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<210> 7
<211> 19
<212> PRT
<213> Homo sapiens

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```

<220>
<223> AH-1 20-mer peptide

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<400> 7
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```

Arg Val Thr Tyr His Ser Pro Ser Tyr Val Tyr His Gln Phe Glu Arg
1          5          10          15

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Arg Ala Lys

<210> 8

<211> 1451

<212> PRT

<213> Homo sapiens

<220>

<223> mature alpha-2M sequence

<400> 8

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His	Thr	Glu	Thr	Thr	Glu	Lys	Gly	Cys	Val	Leu	Leu	Ser	Tyr	Leu	Asn	20	25	30	
Glu	Thr	Val	Thr	Val	Ser	Ala	Ser	Leu	Glu	Ser	Val	Arg	Gly	Asn	Arg	35	40	45	
Ser	Leu	Phe	Thr	Asp	Leu	Glu	Ala	Glu	Asn	Asp	Val	Leu	His	Cys	Val	50	55	60	
Ala	Phe	Ala	Val	Pro	Lys	Ser	Ser	Ser	Asn	Glu	Val	Met	Phe	Leu		65	70	75	80
Thr	Val	Gln	Val	Lys	Gly	Pro	Thr	Gln	Glu	Phe	Lys	Lys	Arg	Thr	Thr	85	90	95	
Val	Met	Val	Lys	Asn	Glu	Asp	Ser	Leu	Val	Phe	Val	Gln	Thr	Asp	Lys	100	105	110	
Ser	Ile	Tyr	Lys	Pro	Gly	Gln	Thr	Val	Lys	Phe	Arg	Val	Val	Ser	Met	115	120	125	
Asp	Glu	Asn	Phe	His	Pro	Leu	Asn	Glu	Leu	Ile	Pro	Leu	Val	Tyr	Ile	130	135	140	
Gln	Asp	Pro	Lys	Gly	Asn	Arg	Ile	Ala	Gln	Trp	Gln	Ser	Phe	Gln	Leu	145	150	155	160
Glu	Gly	Gly	Leu	Lys	Gln	Phe	Ser	Phe	Pro	Leu	Ser	Ser	Glu	Pro	Phe	165	170	175	
Gln	Gly	Ser	Tyr	Lys	Val	Val	Val	Gln	Lys	Lys	Ser	Gly	Gly	Arg	Thr	180	185	190	
Glu	His	Pro	Phe	Thr	Val	Glu	Glu	Phe	Val	Leu	Pro	Lys	Phe	Glu	Val	195	200	205	
Gln	Val	Thr	Val	Pro	Lys	Ile	Ile	Thr	Ile	Leu	Glu	Glu	Glu	Met	Asn	210	215	220	
Val	Ser	Val	Cys	Gly	Leu	Tyr	Thr	Tyr	Gly	Lys	Pro	Val	Pro	Gly	His	225	230	235	240
Val	Thr	Val	Ser	Ile	Cys	Arg	Lys	Tyr	Ser	Asp	Ala	Ser	Asp	Cys	His	245	250	255	
Gly	Glu	Asp	Ser	Gln	Ala	Phe	Cys	Glu	Lys	Phe	Ser	Gly	Gln	Leu	Asn	260	265	270	
Ser	His	Gly	Cys	Phe	Tyr	Gln	Gln	Val	Lys	Thr	Lys	Val	Phe	Gln	Leu	275	280	285	
Lys	Arg	Lys	Glu	Tyr	Glu	Met	Lys	Leu	His	Thr	Glu	Ala	Gln	Ile	Gln	290	295	300	
Glu	Glu	Gly	Thr	Val	Val	Glu	Leu	Thr	Gly	Arg	Gln	Ser	Ser	Glu	Ile	305	310	315	320
Thr	Arg	Thr	Ile	Thr	Lys	Leu	Ser	Phe	Val	Lys	Val	Asp	Ser	His	Phe	325	330	335	
Arg	Gln	Gly	Ile	Pro	Phe	Phe	Gly	Gln	Val	Arg	Leu	Val	Asp	Gly	Lys	340	345	350	
Gly	Val	Pro	Ile	Pro	Asn	Lys	Val	Ile	Phe	Ile	Arg	Gly	Asn	Glu	Ala	355	360	365	

Asn	Tyr	Tyr	Ser	Asn	Ala	Thr	Thr	Asp	Glu	His	Gly	Leu	Val	Gln	Phe
370						375					380				
Ser	Ile	Asn	Thr	Thr	Asn	Val	Met	Gly	Thr	Ser	Leu	Thr	Val	Arg	Val
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Asn	Tyr	Lys	Asp	Arg	Ser	Pro	Cys	Tyr	Gly	Tyr	Gln	Trp	Val	Ser	Glu
				405					410					415	
Glu	His	Glu	Glu	Ala	His	His	Thr	Ala	Tyr	Leu	Val	Phe	Ser	Pro	Ser
			420					425					430		
Lys	Ser	Phe	Val	His	Leu	Glu	Pro	Met	Ser	His	Glu	Leu	Pro	Cys	Gly
		435					440					445			
His	Thr	Gln	Thr	Val	Gln	Ala	His	Tyr	Ile	Leu	Asn	Gly	Gly	Thr	Leu
	450					455					460				
Leu	Gly	Leu	Lys	Lys	Leu	Ser	Phe	Tyr	Tyr	Leu	Ile	Met	Ala	Lys	Gly
465					470					475					480
Gly	Ile	Val	Arg	Thr	Gly	Thr	His	Gly	Leu	Leu	Val	Lys	Gln	Glu	Asp
				485					490					495	
Met	Lys	Gly	His	Phe	Ser	Ile	Ser	Ile	Pro	Val	Lys	Ser	Asp	Ile	Ala
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Pro	Val	Ala	Arg	Leu	Leu	Ile	Tyr	Ala	Val	Leu	Pro	Thr	Gly	Asp	Val
		515					520					525			
Ile	Gly	Asp	Ser	Ala	Lys	Tyr	Asp	Val	Glu	Asn	Cys	Leu	Ala	Asn	Lys
	530					535					540				
Val	Asp	Leu	Ser	Phe	Ser	Pro	Ser	Gln	Ser	Leu	Pro	Ala	Ser	His	Ala
545					550					555					560
His	Leu	Arg	Val	Thr	Ala	Ala	Pro	Gln	Ser	Val	Cys	Ala	Leu	Arg	Ala
				565					570					575	
Val	Asp	Gln	Ser	Val	Leu	Leu	Met	Lys	Pro	Asp	Ala	Glu	Leu	Ser	Ala
			580					585					590		
Ser	Ser	Val	Tyr	Asn	Leu	Leu	Pro	Glu	Lys	Asp	Leu	Thr	Gly	Phe	Pro
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Gly	Pro	Leu	Asn	Asp	Gln	Asp	Asp	Glu	Asp	Cys	Ile	Asn	Arg	His	Asn
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Val	Tyr	Ile	Asn	Gly	Ile	Thr	Tyr	Thr	Pro	Val	Ser	Ser	Thr	Asn	Glu
625					630					635					640
Lys	Asp	Met	Tyr	Ser	Phe	Leu	Glu	Asp	Met	Gly	Leu	Lys	Ala	Phe	Thr
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Asn	Ser	Lys	Ile	Arg	Lys	Pro	Lys	Met	Cys	Pro	Gln	Leu	Gln	Gln	Tyr
			660					665					670		
Glu	Met	His	Gly	Pro	Glu	Gly	Leu	Arg	Val	Gly	Phe	Tyr	Glu	Ser	Asp
		675					680					685			
Val	Met	Gly	Arg	Gly	His	Ala	Arg	Leu	Val	His	Val	Glu	Glu	Pro	His
	690					695					700				
Thr	Glu	Thr	Val	Arg	Lys	Tyr	Phe	Pro	Glu	Thr	Trp	Ile	Trp	Asp	Leu
705					710					715					720
Val	Val	Val	Asn	Ser	Ala	Gly	Val	Ala	Glu	Val	Gly	Val	Thr	Val	Pro
			725						730					735	
Asp	Thr	Ile	Thr	Glu	Trp	Lys	Ala	Gly	Ala	Phe	Cys	Leu	Ser	Glu	Asp
			740					745					750		
Ala	Gly	Leu	Gly	Ile	Ser	Ser	Thr	Ala	Ser	Leu	Arg	Ala	Phe	Gln	Pro
		755					760					765			
Phe	Phe	Val	Glu	Leu	Thr	Met	Pro	Tyr	Ser	Val	Ile	Arg	Gly	Glu	Ala
	770					775					780				
Phe	Thr	Leu	Lys	Ala	Thr	Val	Leu	Asn	Tyr	Leu	Pro	Lys	Cys	Ile	Arg
785					790					795					800
Val	Ser	Val	Gln	Leu	Glu	Ala	Ser	Pro	Ala	Phe	Leu	Ala	Val	Pro	Val
			805						810					815	
Glu	Lys	Glu	Gln	Ala	Pro	His	Cys	Ile	Cys	Ala	Asn	Gly	Arg	Gln	Thr
			820					825					830		
Val	Ser	Trp	Ala	Val	Thr	Pro	Lys	Ser	Leu	Gly	Asn	Val	Asn	Phe	Thr
		835					840					845			
Val	Ser	Ala	Glu	Ala	Leu	Glu	Ser	Gln	Glu	Leu	Cys	Gly	Thr	Glu	Val

850						855						860				
Pro	Ser	Val	Pro	Glu	His	Gly	Arg	Lys	Asp	Thr	Val	Ile	Lys	Pro	Leu	
865					870					875					880	
Leu	Val	Glu	Pro	Glu	Gly	Leu	Glu	Lys	Glu	Thr	Thr	Phe	Asn	Ser	Leu	
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Leu	Cys	Pro	Ser	Gly	Gly	Glu	Val	Ser	Glu	Glu	Leu	Ser	Leu	Lys	Leu	
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945					950					955					960	
Ile	Tyr	Val	Leu	Asp	Tyr	Leu	Asn	Glu	Thr	Gln	Gln	Leu	Thr	Pro	Glu	
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		995					1000					1005				
Tyr	Gly	Arg	Asn	Gln	Gly	Asn	Thr	Trp	Leu	Thr	Ala	Phe	Val	Leu	Lys	
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Phe	Arg	Ser	Ser	Gly	Ser	Leu	Leu	Asn	Asn	Ala	Ile	Lys	Gly	Gly	Val	
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Glu	Asp	Glu	Val	Thr	Leu	Ser	Ala	Tyr	Ile	Thr	Ile	Ala	Leu	Leu	Glu	
	1075						1080					1085				
Ile	Pro	Leu	Thr	Val	Thr	His	Pro	Val	Val	Arg	Asn	Ala	Leu	Phe	Cys	
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Leu	Glu	Ser	Ala	Trp	Lys	Thr	Ala	Gln	Glu	Gly	Asp	His	Gly	Ser	His	
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Val	Tyr	Thr	Lys	Ala	Leu	Leu	Ala	Tyr	Ala	Phe	Ala	Leu	Ala	Gly	Asn	
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Lys	Lys	Asp	Asn	Ser	Val	His	Trp	Glu	Arg	Pro	Gln	Lys	Pro	Lys	Ala	
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Cys	Asp	Glu	Pro	Lys	Ala	His	Thr	Ser	Phe	Gln	Ile	Ser	Leu	Ser	Val	
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Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile Val Asp Val  
 1345 1350 1355 1360  
 Lys Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr Val Lys Met Leu  
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 Glu Arg Ser Asn His Val Ser Arg Thr Glu Val Ser Ser Asn His Val  
 1380 1385 1390  
 Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr Leu Ser Leu Phe Phe  
 1395 1400 1405  
 Thr Val Leu Gln Asp Val Pro Val Arg Asp Leu Lys Pro Ala Ile Val  
 1410 1415 1420  
 Lys Val Tyr Asp Tyr Tyr Glu Thr Asp Glu Phe Ala Ile Ala Glu Tyr  
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<400> 9

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 1 5 10

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 1 5 10

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